



## **DEPARTMENT OF THE INTERIOR**

### **Fish and Wildlife Service**

#### **50 CFR Part 17**

**[Docket No. FWS–R2–ES–2013–0025; 4500090023]**

**RIN 1018–AZ43**

### **Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for the Acuña Cactus and the Fickeisen Plains Cactus**

**AGENCY:** Fish and Wildlife Service, Interior.

**ACTION:** Final rule.

**SUMMARY:** We, the U.S. Fish and Wildlife Service (Service), designate critical habitat for the *Echinomastus erectocentrus* var. *acunensis* (acuña cactus) and the *Pediocactus peeblesianus* var. *fickeiseniae* (Fickeisen plains cactus) under the Endangered Species Act. Critical habitat for the acuña cactus is located in Maricopa, Pima, and Pinal

Counties, Arizona, and critical habitat for the Fickeisen plains cactus is located in Coconino and Mohave Counties, Arizona. The effect of this regulation is to designate critical habitat for the acuña cactus and the Fickeisen plains cactus under the Endangered Species Act.

**DATES:** This rule becomes effective [**INSERT DATE 30 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER**].

**ADDRESSES:** This final rule is available on the Internet at <http://www.regulations.gov>, Docket No. FWS–R2–ES–2013–0025. Comments and materials we received, as well as some supporting documentation used in the preparation of this final rule, are available for public inspection at <http://www.regulations.gov>. All of the comments, materials, and documentation that we considered in this rulemaking are available by appointment, during normal business hours at: U.S. Fish and Wildlife Service, 9828 North 31st Ave., Suite C3, Phoenix, AZ 85051; telephone 602–242–0210; facsimile 602–242–2513.

The coordinates or plot points or both from which the maps are generated are included in the administrative record for this critical habitat designation and are available at <http://www.fws.gov/southwest/es/arizona>, at <http://www.regulations.gov> in Docket No. FWS–R2–ES–2013–0025, and at the Arizona Ecological Services Office (see **FOR FURTHER INFORMATION CONTACT**). Any additional tools or supporting information that we developed for this critical habitat designation will also be available at the U.S. Fish and Wildlife Service website and Field Office set out above, and may also

be included in the preamble and at <http://www.regulations.gov>.

**FOR FURTHER INFORMATION CONTACT:** Steve Spangle, Field Supervisor, U.S. Fish and Wildlife Service, 9828 North 31st Ave., Suite C3, Phoenix, AZ 85051; by telephone (602) 242–0210; or by facsimile (602) 242–2513. Persons who use a telecommunications device for the deaf (TDD) may call the Federal Information Relay Service (FIRS) at 800–877–8339.

## **SUPPLEMENTARY INFORMATION:**

### **Executive Summary**

This document consists of a final rule to designate critical habitat for *Echinomastus erectocentrus* var. *acunensis* (acuña cactus) and *Pediocactus peeblesianus* var. *fickeiseniae* (Fickeisen plains cactus) under the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 et seq.) (Act). In this final rule, we refer to these species by their common names.

*Why we need to publish a rule.* This is a final rule to designate critical habitat for the acuña cactus and Fickeisen plains cactus. Under the Act, any species that is determined to be an endangered or threatened species requires critical habitat to be designated, to the maximum extent prudent and determinable. Designations and revisions of critical habitat can only be completed by issuing a rule.

On October 3, 2012, the U.S. Fish and Wildlife Service (Service) published in the **Federal Register** a proposed rule to list the acuña cactus and the Fickeisen plains cactus as endangered species and designate critical habitat for them (77 FR 60509). The Service published in the **Federal Register** a final rule to list the acuña cactus and the Fickeisen plains cactus as endangered species on October 1, 2013 (78 FR 60608). Section 4(b)(2) of the Act states that the Secretary shall designate critical habitat on the basis of the best available scientific data after taking into consideration the economic impact, national security impact, and any other relevant impact of specifying any particular area as critical habitat.

The critical habitat areas we are designating in this rule constitute our current best assessment of the areas that meet the definition of critical habitat for the acuña cactus and the Fickeisen plains cactus. We included unoccupied areas with suitable acuña cactus habitat in the proposed critical habitat designation; however, we have since changed our determination and concluded that unoccupied habitat is not essential for the conservation of the acuña cactus and, therefore, removed these areas from the final designation. All areas included in this final critical habitat designation for both the acuña cactus and the Fickeisen plains cactus are occupied. We are designating:

- In total, approximately 7,501 ha (18,535 ac) in six units as critical habitat for the acuña cactus.
- In total, approximately 7,062 ha (17,456 ac) in six units as critical habitat for the Fickeisen plains cactus.

*Economic analysis.* In order to consider economic impacts, we have prepared an analysis of the economic impacts of the critical habitat designations. We announced the availability of the draft economic analysis (DEA) in the **Federal Register** on March 28, 2013 (78 FR 18938), allowing the public to provide comments on our analysis. We have incorporated the comments and have completed the final economic analysis (FEA, dated August 23, 2013).

*Peer review and public comment.* We sought comments from independent specialists to ensure that our designation is based on scientifically sound data and analyses. We invited these peer reviewers to comment on our listing and critical habitat proposal. We obtained opinions from two knowledgeable individuals for the acuña cactus and two knowledgeable individuals for the Fickeisen plains cactus, all with scientific expertise to review our technical assumptions, analysis, and whether or not we had used the best available information for both plants. The comments of these reviewers were focused on the designation of the two species; we received only one review that incorporated a comment on the Fickeisen plains cactus critical habitat designation portion of the draft rule. These peer reviewers generally concurred with our methods and conclusions and provided additional information, clarifications, and suggestions to improve this final rule. Information we received from peer review is incorporated into this final rule. We also considered all comments and information received from the public during the comment period.

## **Previous Federal Actions**

On October 1, 2013, we published in the **Federal Register** a final determination to list the acuña cactus and the Fickeisen plains cactus as endangered species under the Act (78 FR 60608). Please refer to the proposed listing and critical habitat rule for the acuña cactus and the Fickeisen plains cactus (77 FR 60509, October 3, 2012) for a discussion of previous Federal actions that occurred prior to the listing of these taxa.

## **Summary of Comments and Recommendations**

We requested written comments from the public on the proposed designation of critical habitat for the acuña cactus and the Fickeisen plains cactus during three comment periods. The first comment period associated with the publication of the proposed rule (77 FR 60509) opened on October 3, 2012, and closed on December 3, 2012. We requested comments on the proposed critical habitat designation and associated DEA during a comment period that opened March 28, 2013, and closed on April 29, 2013 (78 FR 18938). We also requested comments on revisions to the proposed critical habitat designation during a comment period that opened July 8, 2013, and closed July 23, 2013 (78 FR 40673). We did not receive a request for a public hearing during any of the three open comment periods. We also contacted appropriate Federal, State, and local agencies; scientific organizations; and other interested parties and invited them to comment on the proposed rule and DEA during these comment periods.

During the public comment periods, we received 13 comment letters, including 1 from a peer reviewer, directly addressing the proposed critical habitat designation. All substantive information provided during comment periods has either been incorporated directly into this final determination or addressed below.

#### *Peer Review*

In accordance with our peer review policy published on July 1, 1994 (59 FR 34270), we solicited expert opinion from three knowledgeable individuals on the acuña cactus and six on the Fickeisen plains cactus having scientific expertise that included familiarity with the respected taxon and its habitat, biological needs, and threats. We received only one response that incorporated a comment on the critical habitat designation portion of the draft rule.

We reviewed the comment received from the peer reviewer for substantive issues and new information regarding the proposed rules to list and designate critical habitat for the acuña cactus and Fickeisen plains cactus. The peer reviewer generally concurred with our methods and conclusions and provided additional information, clarifications, and suggestions to improve the final rules. Peer reviewer comments are addressed in the following summary and incorporated into this final critical habitat rule as appropriate.

#### *Peer Reviewer Comments*

(1) *Comment:* One peer reviewer commented that the designation of 1,000 meters (m) (3,280 feet (ft)) of pollination area surrounding each Fickeisen plains cactus population is inadequate to buffer threats. The reviewer suggested increasing the area around each population area by an additional 1,000 m (3,280 ft) for a total of 2,000 m (6,561 ft) to adjust for uncertainties of plant locations, provided that the primary constituent elements are present.

*Our Response:* The Fickeisen plains cactus is dependent on pollinators for reproduction. Thus, preserving the interaction between the cactus and its pollinators is integral for survival. Through our analysis, we found that a 1,000-m (3,280-ft) pollination area was sufficient to support the maximum foraging distance of ground-nesting bees that are the primary pollinators of the cactus. This 1,000-m (3,280-ft) pollination area is not intended to serve as a buffer from threats, but as a primary constituent element necessary to support the essential physical or biological features. We do not have information suggesting that a larger area around plants is necessary to maintain and support plant–pollinator interactions.

#### *Federal Comments*

(2) *Comment:* The U.S. Air Force provided information on past and planned future activities to conserve the acuña cactus on the Barry M. Goldwater Gunnery Range (BMGR).



*Our Response:* Based on the information we received, the Service considered land on the BMGR for possible exemption from the final critical habitat designation for the acuña cactus under the authority of section (4)(a)(3)(B)(i) of the Act. The Service met with the U.S. Air Force to discuss current and planned conservation measures for the acuña cactus on the BMGR. We have also evaluated the conservation measures for the species as presented in the approved Integrated Natural Resources Management Plan (INRMP) for the BMGR. The revised INRMP provides the following benefits for the acuña cactus: avoiding disturbance of vegetation and pollinators within 900 m (2,953 ft) of known acuña cactus plants; developing and implementing procedures to control trespass livestock; monitoring illegal immigration, contraband trafficking, and border-related enforcement to prevent acuña cacti from being trampled or run over by vehicles; and continuing to monitor and control invasive plant species to maintain quality habitat and prevent the spread of fire where it was historically infrequent. For these reasons, the BMGR is exempt from the final designation of critical habitat for the acuña cactus. Please see the **Exemptions** section of this rule for a more detailed analysis.

#### *Tribal Comments*

(3) *Comment:* The Tohono O’odham Nation requested both a meeting with the Service and an exclusion from the acuña cactus critical habitat designation on their lands. They provided information that efforts by the Tohono O’odham Nation’s legislative body to protect the acuña cactus are under way.

*Our Response:* The Service met with the Tohono O’odham Nation to discuss current and planned conservation measures for the acuña cactus on Tribal lands. The Service has considered land on the Tohono O’odham Nation for exclusion from the critical habitat designation under section (4)(b)(2) of the Act. We are excluding Tohono O’odham Nation land from the final critical habitat designation because the benefits of exclusion as critical habitat outweigh the benefits of inclusion as critical habitat. As further explained in the **Exclusions** section of this rule, we have concluded that the Tohono O’odham Nation has a commitment to protect and manage the acuña cactus habitat on their lands. Exclusion of lands of the Tohono O’odham Nation as critical habitat will allow us to maintain a cooperative working relationship with the Nation, and we expect that the Nation will continue to protect and manage the acuña cactus on their lands.

(4) *Comment:* The Navajo Nation requested an exclusion from the final Fickeisen plains cactus critical habitat designation and submitted the final Navajo Nation Fickeisen Plains Cactus Management Plan that guides species and habitat management for the cactus on all lands administered by the Tribe.

*Our Response:* The Service has considered land on the Navajo Nation for exclusion under section (4)(b)(2) of the Act and has met with the Navajo Nation to discuss current and planned conservation measures for the Fickeisen plains cactus on Tribal lands. We are excluding Navajo Nation land from the final critical habitat designation because the benefits of exclusion as critical habitat outweigh the benefits of

inclusion as critical habitat. As further explained in the **Exclusions** section of this rule, we have concluded that the Navajo Nation has a commitment to protect and manage the Fickeisen plains cactus on their land as described in the final management plan.

Exclusion of lands of the Navajo Nation as critical habitat will allow us to maintain a cooperative working relationship with the Nation, and we expect that the Nation will continue to protect and manage Fickeisen plains cactus habitat on their lands.

(5) *Comment:* The Navajo Nation suggests that critical habitat not be designated for the Fickeisen plains cactus due to the possibility of increased illegal collection. It is the position of the Navajo Nation Department of Fish and Wildlife (NNDFW) that illegal collection is a serious threat to the Fickeisen plains cactus and that making population locations public and easily accessible is detrimental to the conservation of the species.

*Our Response:* We acknowledge the concern of the Navajo Nation that designating critical habitat may lead to illegal collection of listed plant species, but we disagree with this conclusion for the Fickeisen plains cactus. Section 4(a)(3) of the Act and implementing regulations (50 CFR 424.12), require that, to the maximum extent prudent and determinable, the Secretary designate critical habitat at the time the species is determined to be an endangered or threatened species. Our regulations (50 CFR 424.12(a)(1)) state that the designation of critical habitat is not prudent when one or both of the following situations exist: (i) the species is threatened by taking or other human activity, and identification of critical habitat can be expected to increase the degree of such threat to the species, or (ii) such designation of critical habitat would not be

beneficial to the species. In the proposed rule, we found no information that the Fickeisen plains cactus is threatened by illegal collection and concluded that the designation of critical habitat is prudent for the plant (77 FR 60509). In addition, during the comment periods for the proposed rule, we did not receive new information from the Navajo Nation or any other entity indicating that illegal collection is occurring across the range of the plant.

(6) *Comment:* The Navajo Nation commented that there is no data showing that microbiotic soil crusts are closely associated with the Fickeisen plains cactus and, therefore, should not be included as a primary constituent element.

*Our Response:* We acknowledge that there is no evidence available indicating that biological soil crusts are essential to the conservation of the Fickeisen plains cactus, only that crusts are a component of the habitat. Therefore, we have revised the primary constituent element language for this species. Please see the *Primary Constituent Elements for the Fickeisen Plains Cactus* section in the rule.

(7) *Comment:* The Navajo Nation commented that the proposed Fickeisen plains cactus critical habitat locations on their land are based on outdated, approximately 20-year-old data and, thus, are not based on the best scientific information. In addition, the Tribe questioned critical habitat designation in areas containing fewer than 25 cacti when there are larger populations of the plant elsewhere. The Tribe feels that extra conservation efforts should not be focused on smaller populations.

*Our Response:* Section 3(5)(A) of the Act defines critical habitat to mean: (i) the specific areas within the geographical area occupied by the species, at the time it is listed in accordance with the provisions of section 4 of this Act, on which are found those physical or biological features essential to the conservation of the species and which may require special management considerations or protection; and (ii) specific areas outside the geographical area occupied by the species at the time it is listed in accordance with the provisions of section 4 of this Act, upon a determination by the Secretary that such areas are essential for the conservation of the species. The criteria for critical habitat were evaluated using the best scientific and commercial data available including plant surveys that occurred, in some cases, more than 18 years ago and at sites that have not been revisited. In the proposed rule, we specifically requested information from the public on the current status of populations where plants had been documented historically, but the site had not been revisited (77 FR 60509, p. 60512). The Navajo Nation also submitted general information describing the populations on Tribal land, which included records of those that were last observed nearly 20 years ago, and for which they used to estimate the total number of Fickeisen plains cacti on Tribal land. We received no additional information on these populations. Therefore, we have used the best available scientific information in the designation of critical habitat for this species.

In addition, we cannot exclude an occupied area from a critical habitat designation based on small population size. Rather, we are required under the Act to apply the critical habitat designation to all areas that meet the definition in section

3(5)(A) outlined above, provided we have not determined that the benefits of exclusion outweigh the benefits of including the area in the critical habitat designation. As mentioned in the response to comment number 4, above, we have made such a determination under section 4(b)(2) of the Act for Navajo Nation lands and are excluding from the final critical habitat designation all Navajo Nation lands, some of which contain small populations of the Fickeisen plains cacti. The exclusion of lands on the Navajo Nation as critical habitat will aid the Service in maintaining a cooperative working relationship with the Nation. In addition, we expect that the Navajo Nation will continue conservation efforts throughout the entire area occupied by the cactus, even where population size is limited.

#### *Public Comments*

(8) *Comment:* The Babbitt Ranches, LLC, submitted the Draft Babbitt Ranches Fickeisen Plains Cactus Management Plan and requested that their lands be excluded from the final designation of critical habitat.

*Our Response:* The Service considered land managed by the Babbitt Ranches, LLC, for exclusion under section (4)(b)(2) of the Act and has met with the landowners to discuss current and planned conservation measures for the Fickeisen plains cactus. As explained in the **Exclusions** section of this rule, we are excluding from the critical habitat designation lands owned by the Babbitt Ranches, LLC, and State trust lands that are managed by the Babbitt Ranches, LLC, where a land closure is in place. However, we

are not excluding from the final designation the federally owned lands where Babbitt Ranches, LLC, holds grazing permits.

(9) *Comment:* One commenter suggested that the use of the total number of acuña cactus flowers that bloomed in the spring following a winter with 29.7 centimeters (cm) (11.66 inches (in)) of precipitation recorded is biased. The commenter suggested using the percentage of adults with flowers or the average number of flowers per adult as a different metric. The commenter analyzed the Organ Pipe Cactus National Monument (OPCNM) data with these metrics and found no correlation between precipitation and flowering, adult population counts, or plant mortality.

*Our Response:* The use of the number of acuña cactus flowers that bloomed in the spring following 29.7 cm (11.66 in) of precipitation was properly used to identify unoccupied areas that could be considered essential to the conservation of the species. In the proposed rule, we discussed survey data gathered from monitoring plots established in 1977; these data illustrate the relationship between precipitation and acuña cactus flowering. We noted that acuña cactus flower production and recruitment peaked in 1992 (Holm 2006, p. 2-10) following a winter period with total precipitation of 29.7 cm (11.66 in) (Western Regional Climate Center (WRCC) 2012, entire). Similar peaks in recruitment occurred in the early 1990s (Holm 2006, p. 2-6; NPS 2011a, p. 1) following a 1990 summer period with 24.6 cm (9.7 in) of precipitation (WRCC 2012, entire). Alternatively, we also noted flower production lows in years with markedly low winter precipitation. We also note that Johnson (1992) found that flower production was highest

during the 2 wettest years of his study; his analysis suggests that rainfall is positively correlated with the number of flowers produced in acuña cactus, as well as in other cacti, and cites numerous studies in his conclusion. Therefore, we used this information to identify areas that receive 29.7 cm (11.66 in) or higher total annual precipitation as necessary for the acuña cactus reproduction and survival. Thus, the best available information indicates that the total number of flowers is an appropriate metric. However, public comments we received provided evidence that this metric should be adjusted to reflect that areas receiving 29.7 cm (11.66 in) or higher in winter precipitation only (not annual precipitation) are necessary for the acuña cactus. We reassessed our proposed critical habitat based on this metric, but there are no areas in southern Arizona that contain the geology, elevation, and vegetation communities required by the cactus that support this level of precipitation concentrated in the winter months. Thus, in this final critical habitat designation, we removed 12,113 ha (29,933 ac) of proposed critical habitat from multiple units.

(10) *Comment:* One commenter suggested that the inclusion of acuña cactus critical habitat on private lands in and around the town of Ajo may impede the ability of Ajo to attain funding for infrastructure improvements within the town.

*Our Response:* Despite the fragmented nature of the pollinator habitat in and around the town of Ajo, three juvenile acuña cacti were found in 2013 from within Ajo town site populations and two juveniles were found in 2013 in the Little Ajo Mountains just south of the New Cornelia Copper Mine. The presence of these juveniles suggests



that these areas identified as critical habitat contain the physical and biological features necessary for acuña cactus survival, including supporting pollinators that may be utilizing habitat within the town of Ajo. As stated in the FEA (2013, p. ES-9), no future projects with a Federal nexus were identified within the areas proposed as critical habitat in the town of Ajo and, thus, no impacts are forecast for community infrastructure and development activities.

(11) *Comment:* One commenter is concerned with the reduction in proposed acuña cactus critical habitat due to the miscalculation of annual versus winter precipitation. This commenter suggests creating a lower winter precipitation limit necessary for acuña cactus survival, thus increasing the amount of critical habitat required for the species.

*Our Response:* We recognize that adequate precipitation is necessary for acuña cactus seedling survival, flowering, and fruit set in adult plants. We also recognize that as climate change progresses, areas with higher precipitation or cooler temperatures may become important for the future survival of the species. However, we lack sufficient monitoring and climate modeling data to adjust the precipitation limit utilized in our proposed rule. We made the public aware of our incorrect usage of annual rainfall data rather than winter rainfall data in our revised proposed rule (July 8, 2013; 78 FR 40673), and we announced that we had removed all of the unoccupied critical habitat proposed in our October 3, 2012, proposed rule (77 FR 60509). We have used the best information available at this time to designate critical habitat.

(12) *Comment:* One commenter stated the DEA fails to account for impacts associated with situations in which an activity does not jeopardize the species' continued survival, but nonetheless may be subject to project modifications to avoid adverse modification of critical habitat.

*Our Response:* Section 2.3 of the FEA describes the reasons the Service does not anticipate critical habitat designation to result in additional conservation requirements. These reasons are also presented in the Service's "Incremental Effects of Critical Habitat Designation for the Acuña Cactus and the Fickeisen Plains Cactus". Conservation measures being implemented in response to the species' listing status under the Act are expected to sufficiently avoid potential destruction or adverse modification of critical habitat as well. Thus, projects are already avoiding adverse modification under the regulatory baseline, and no additional conservation measures or project modifications are expected following the critical habitat designation. The Service acknowledges there may be rare cases in which localized projects may not adversely affect the plants, but may adversely modify critical habitat. Specifically, this potential scenario could occur in areas of proposed critical habitat where the cacti are at very low densities. However, the best available information does not indicate that such areas are known to exist at this time.

(13) *Comment:* One commenter stated, "according to the Service, because the [acuña cactus] is closely tied to its habitat, it is more likely that surface disturbances

resulting in critical habitat being adversely modified would likely also constitute jeopardy to the species.” In light of this assertion, the commenter stated that a careful analysis of likely reasonable and prudent alternatives (RPAs) must be undertaken when evaluating the costs associated with designating critical habitat. In this case, the DEA contains no such discussion and limits the assessment of costs solely to administrative costs associated with carrying out a section 7 consultation.

*Our Response:* Section 2.3.2 of the FEA describes the analytic framework used to identify incremental impacts of the proposed critical habitat designation. The analytic framework discussed in this section takes into account the above statements. Specifically, the FEA relies upon this statement as the basis for assuming that project modifications recommended to avoid adverse modification would not differ from those recommended to avoid jeopardy.

Since all of the designated critical habitat units for the acuña cactus are occupied, a Federal action requiring section 7 consultation would need to analyze impacts to both the species and critical habitat. If the action jeopardizes the species, the development of RPAs to conserve the species would be the same as those for critical habitat. Therefore, there would be no additional cost to conserve critical habitat beyond what it costs to prevent jeopardizing the species. RPAs are developed in cooperation with the Federal agency and applicant (if any) because often they are the only ones who can determine if an alternative is within their legal authority and jurisdiction, and if it is economically and technologically feasible.

As stated in the FEA (Es-6, Appendix C, p. 11), in most cases the types of conservation efforts requested by the Service during section 7 consultation regarding the plants are not expected to change with critical habitat designation of occupied habitat due to the fact that the species are closely tied to their habitat and are not mobile. In most instances, we anticipate that the conservation efforts recommended to avoid jeopardy to the species also effectively would avoid the destruction or adverse modification of occupied critical habitat. As a result, critical habitat designation generally will not change the types of plant conservation efforts recommended by the Service. For these reasons, the incremental cost of designating critical habitat is considered administrative (i.e., those costs associated with addressing adverse modification in section 7 consultations).

(14) *Comment:* One commenter asserted that the Service fails to consider the significant expense associated with initiating consultation, including the costs involved in preparing a biological assessment and submitting other information requested by the Service as a part of section 7 consultation.

*Our Response:* The FEA relies on the best available information to estimate the administrative costs of section 7 consultations. As described in Exhibit 2-2 of the FEA, the consultation cost model is based on a review of consultation records and interviews with staff from three Service field offices, telephone interviews with action agencies (e.g., Bureau of Land Management (BLM), U.S. Forest Service, and U.S. Army Corps),

and telephone interviews with private consulting firms who perform work in support of permittees.

The model is periodically updated with new information received in the course of data collection efforts supporting economic analyses and public comment on more recent critical habitat rules. In addition, the general schedule rates are updated annually. The cost of preparing a biological assessment is included as part of the consultation cost model, with estimated incremental costs ranging from \$500 to \$5,600 per consultation. These costs are based on interviews with representatives from private consulting firms on the typical costs charged to clients in support of section 7 consultation efforts (e.g., biological survey and preparation of materials to support a biological assessment).

(15) *Comment:* One commenter asserted that the DEA fails to consider that significant project delays result from the section 7 consultation process.

*Our Response:* As discussed in the economic analysis, activities that would require consultation for critical habitat are primarily the same as activities that currently require consultation for the species because all of the proposed critical habitat units are occupied. We do not expect new consultations to result solely from the designation of critical habitat. Accordingly, critical habitat designation is not expected to result in any measurable time delays beyond the time constraints created by the baseline section 7 consultation process.

(16) *Comment:* One commenter stated that the discussion of baseline protections in the proposed rule is inconsistent with how baseline protections are described and assessed in the DEA. Specifically, the commenter asserted that the proposed rule states that current protections are inadequate and do not address threats to the species and its habitat, whereas the DEA states that over 90 percent of the proposed critical habitat for the acuña cactus has baseline protections.

*Our Response:* Baseline protections are related to the listing of a species as an endangered or threatened species under the Act rather than the designation of critical habitat. In the proposed listing rule, we considered whether the existing regulatory mechanisms were adequate to alleviate the identified threats. The DEA evaluated only the incremental impacts of critical habitat designation. Accordingly, the conclusion that over 90 percent of the proposed critical habitat for the acuña cactus is subject to baseline protections is based on the species being listed under the Act.

(17) *Comment:* One commenter stated that the DEA did not adequately account for the possibility of private projects being subject to a Federal nexus, and, in turn, does not account for potential modification of these projects as a result of section 7 consultation.

*Our Response:* Approximately 4,690 ha (11,590 ac) (18 percent) of the areas proposed as critical habitat for the acuña and Fickeisen plains cacti are privately owned. The economic analysis discusses the potential for a Federal nexus on private lands

associated with livestock grazing and voluntary on-the-ground habitat improvement projects. For both activities, the DEA discussed the potential for Federal funding of these activities on private lands to trigger section 7 consultation and forecasted one programmatic consultation with the respective action agency for future projects that may affect proposed critical habitat for the cacti on private lands. The FEA has been revised to include consideration of additional activities on private lands within acuña cactus Unit 2.

(18) *Comment:* One commenter suggested that section 7 consultation could be triggered for projects implemented in the town of Ajo as the result of Federal funding under the U.S. Department of Housing and Urban Development's (HUD) Community Development Block Grant program.

*Our Response:* We contacted Pima County's Community Development Block Grant (CDBG) Program. According to discussions with the Program Coordinator, there are two projects currently under way that are funded by the Pima County CDBG program in the town of Ajo and which appear to fall within areas proposed as critical habitat in acuña cactus critical habitat Unit 2. However, both projects involve improvements to existing structures and do not include any ground-disturbing activities that would trigger section 7 consultation.

Section 7 consultation may be triggered for future projects funded under the Pima County CDBG program that involve new construction or ground-disturbing activities.

The Pima County CDBG Program Coordinator indicated, however, that it is difficult to forecast projects that may occur in the future. Selection for funding under the Pima County CDBG program follows an annual cycle and is based on a range of factors, including the level of funding provided by HUD, an assessment of feasibility, need, and benefits, and local priorities as determined by the Pima County Board of Supervisors. At this time, the Pima County CDBG program is not aware of any new projects that involve ground-disturbing activities within the area proposed as critical habitat in the town of Ajo. As a result, this analysis does not estimate any future section 7 consultations related to Pima County's CDBG program. To the extent that new projects funded by the Pima County CDBG program include ground-disturbing activities over the next 20 years, this analysis may underestimate costs in Ajo Unit 2 associated with section 7 consultations. However, this assumption only affects the estimated administrative costs of section 7 consultation. As a result, any future incremental impacts are likely to be minor. The FEA has been revised to include this new information about potentially affected activities related to the CDBG program in the town of Ajo.

(19) *Comment:* One commenter suggested that the DEA fails to conduct a proper Regulatory Flexibility Analysis (RFA) for the town of Ajo, which is a small governmental jurisdiction based on a 2010 population of 3,304.

*Our Response:* A portion of the town of Ajo overlaps proposed acuña critical habitat in Ajo Unit 2. While we agree that the town of Ajo is a small governmental entity, RFAs are required for small governmental entities only when those entities are



also considered directly regulated entities. In the case of critical habitat designation for the acuña and Fickeisen plains cacti, the only directly regulated entities are the Federal agencies required to consult under section 7 of the Act. As such, the town of Ajo is not considered a directly regulated entity, and an RFA, therefore, is not required.

(20) *Comment:* Two commenters asserted that the DEA fails to consider impacts to mining as a result of critical habitat designation for the acuña cactus. Specifically, the comments note that proposed habitat for acuña cactus in Ajo Unit 2 is in an area with historically active mines, as well as an area with potential for future mining.

*Our Response:* A discussion of mining activities within areas proposed as critical habitat for the acuña cactus in Ajo Unit 2 has been added to the FEA. Mining activities in this area may have a Federal nexus for section 7 consultation through the Federal permitting process with such action agencies as the BLM. Within Ajo Unit 2, at least one inactive copper mine and several unpatented mining claims overlap areas proposed as critical habitat. However, there is significant uncertainty regarding when, or if, any of these areas will be actively mined within the 20-year time period for this analysis. Accordingly, the FEA does not forecast any incremental impacts associated with these mining activities. To the extent that any of the mining resources present in Ajo Unit 2 are actively developed over the next 20 years, this analysis may underestimate the administrative costs associated with section 7 consultations. As Ajo Unit 2 is considered to be occupied by the acuña cactus, costs associated with implementing any conservation measures would be considered baseline impacts.

(21) *Comment:* One commenter asserted that the DEA fails to assess potential impacts to energy supply distribution or use from the designation of critical habitat for the acuña cactus, and, therefore, is not in compliance with Executive Order 13211.

*Our Response:* Executive Order 13211 states that Federal agencies must prepare and submit a “Statement of Energy Effects” for all “significant energy actions.” The Office of Management and Budget provided guidance for implementing the Executive Order, and described various outcomes that may constitute “a significant adverse effect.” These are described in A-4 of the FEA. As described in Chapter 3 of the FEA, critical habitat designation for the Fickeisen plains cactus is anticipated to affect uranium mining. Impacts to uranium mining, however, are limited to the administrative costs of one formal consultation for the EZ Mine, totaling less than \$900 in costs for the managing company, Energy Fuels Inc., over the 20-year period of analysis. The magnitude of this consultation cost is not anticipated to reduce fuel production or energy production, or increase the cost of energy production or distribution in the United States in excess of 1 percent. Alternatively, as described in Chapter 3 of the FEA, critical habitat designation for the acuña cactus is not anticipated to affect mining. Therefore, the designation of critical habitat for either species does not exceed any of the thresholds provided by the Office of Management and Budget’s guidance and is not considered a “significant energy action.” Appendix A of the FEA has been updated to reflect this finding.

## **Summary of Changes from the Proposed Rule**

Since the publication of the October 3, 2012 (77 FR 60509), proposed rule to list and designate critical habitat for the acuña cactus and Fickeisen plains cactus, we have made the following changes in the final critical habitat rules:

(1) Based on information received from public comments, we reevaluated the designation of the Dripping Spring acuña cactus critical habitat subunit in OPCNM, Arizona. The proposed rule outlined criteria for designation of critical habitat, which included that unoccupied areas with suitable acuña cactus habitat and that receive higher mean winter precipitation were necessary for the conservation of the species. The additional information provided during the public comment period indicated that the Dripping Spring subunit was unoccupied yet does not receive 29.7 cm (11.66 in) of winter rainfall. As a result, we determined that it was not essential for acuña cactus conservation and did not include it in this final critical habitat designation, thus removing 1,591 ha (3,931 ac) of proposed critical habitat from Unit 1.

(2) Based on information received from public comments, we excluded lands owned and managed by the Tohono O’odham Nation, Arizona, from the designation of critical habitat for the acuña cactus. Natural resources management already in place on the Tribe aids in the conservation of the species. As a result, 156 ha (385 ac) of critical habitat were removed from acuña cactus Unit 3.

(3) Based on information received from public comments, including a revised section of an existing INRMP, we exempted lands owned and managed by the U.S. Air Force on the BMGR, Arizona, from the designation of critical habitat for the acuña cactus. Natural resources management for this species, as outlined in the revised INRMP, aids in the conservation of the acuña cactus. As a result, 378 ha (935 ac) of proposed critical habitat were removed from Unit 3.

(4) Based on information received from public comments, we reevaluated acuña cactus critical habitat in areas receiving total annual precipitation exceeding 29.7 cm (11.66 in). We reassessed this habitat based on areas receiving 29.7 cm (11.66 in) or more of winter precipitation only. As a result, we determined that no areas in southern Arizona that contain the geology, elevation, and vegetation communities required by acuña cactus support this level of precipitation concentrated within the winter months. Therefore, in this final critical habitat designation, there are no critical habitat areas for the acuña cactus that receive 29.7 cm (11.66 in) or more of winter precipitation. As a result, 12,113 ha (29,933 ac) of proposed critical habitat were removed from multiple units. This issue is discussed in further detail in the revised proposed critical habitat designation (78 FR 40673, July 8, 2013).

(5) Based on information received from public comments, we excluded 3,865 ha (9,554 ac) of Tribal land from the final Fickeisen plains cactus critical habitat. Navajo Nation lands excluded include the entire Tiger Wash Unit (Unit 6), the entire Little Colorado River Overlook Unit (Unit 7), and portions of the Gray Mountain subunit

(Subunit 8b) of the proposed Gray Mountain Unit (Unit 8). Natural resources management already in place on and documented in a new management plan for the Navajo Nation aids in the conservation of the species.

(6) Based on information received from public comments, we excluded from the Fickeisen plains cactus final critical habitat designation 8,139 ha (20,113 ac) of land that is either: (1) owned by the Babbitt Ranches, LLC; or (2) managed by the Babbitt Ranches, LLC, but owned by the State and subject to land closure. The excluded area includes the entire proposed Cataract Canyon Unit and private land in the Mays Wash subunit. Exclusion of these lands as critical habitat will allow us to maintain a cooperative working relationship with the Babbitt Ranches, LLC, and we expect that Babbitt Ranches, LLC, will continue to protect and manage the Fickeisen plains cactus habitat on their lands.

(7) Based on new information received during the public comment periods, we removed the Snake Gulch Unit (945 ha (2,335 ac)) from the final designation of Fickeisen plains cactus critical habitat, because the unit is no longer considered occupied, and we determined that it is not essential to the conservation of the species. We added the South Canyon Unit (110 ha (272 ac)) on U.S. Forest Service (USFS) land where occupancy was verified in 2013.

The rule revising 50 CFR 424.12 was published on February 11, 2016 (81 FR 7413), and became effective on March 14, 2016. As stated in that rule, the revised

version of § 424.12 applies only to rulemakings for which the proposed rule is published after that date. Thus, the prior version of § 424.12 will continue to apply to any rulemakings for which a proposed rule was published before that date. Since the proposed rule for acuna cactus and Fickeisen plains cactus critical habitat was published on October 3, 2012, this final rule follows the version of § 424.12 that was in effect at that time.

## **Critical Habitat**

### *Background*

It is our intent to discuss below only those topics directly relevant to the designation of critical habitat for the acuña cactus and Fickeisen plains cactus. For a complete description of the life history and habitat needs of the acuña cactus and Fickeisen plains cactus, see the *Background* section in the final listing rule published on (78 FR 60608, October 1, 2013).

Critical habitat is defined in section 3 of the Act as:

- (1) The specific areas within the geographical area occupied by the species, at the time it is listed in accordance with the Act, on which are found those physical or biological features
  - (a) Essential to the conservation of the species and
  - (b) Which may require special management considerations or protection; and

(2) Specific areas outside the geographical area occupied by the species at the time it is listed, upon a determination that such areas are essential for the conservation of the species.

Conservation, as defined under section 3 of the Act, means to use and the use of all methods and procedures that are necessary to bring an endangered or threatened species to the point at which the measures provided pursuant to the Act are no longer necessary. Such methods and procedures include, but are not limited to, all activities associated with scientific resources management such as research, census, law enforcement, habitat acquisition and maintenance, propagation, live trapping, and transplantation, and, in the extraordinary case where population pressures within a given ecosystem cannot be otherwise relieved, may include regulated taking.

Critical habitat receives protection under section 7 of the Act through the requirement that Federal agencies ensure, in consultation with the Service, that any action they authorize, fund, or carry out is not likely to result in the destruction or adverse modification of critical habitat. The designation of critical habitat does not affect land ownership or establish a refuge, wilderness, reserve, preserve, or other conservation area. Such designation does not allow the government or public to access private lands. Such designation does not require implementation of restoration, recovery, or enhancement measures by non-Federal landowners. Where a landowner requests Federal agency funding or authorization for an action that may affect a listed species or critical habitat, the consultation requirements of section 7(a)(2) of the Act would apply, but even in the

event of a destruction or adverse modification finding, the obligation of the Federal action agency and the landowner is not to restore or recover the species, but to implement reasonable and prudent alternatives to avoid destruction or adverse modification of critical habitat.

Under the first prong of the Act's definition of critical habitat, areas within the geographical area occupied by the species at the time it was listed are included in a critical habitat designation if they contain physical or biological features (1) which are essential to the conservation of the species and (2) which may require special management considerations or protection. For these areas, critical habitat designations identify, to the extent known using the best scientific and commercial data available, those physical or biological features that are essential to the conservation of the species (such as space, food, cover, and protected habitat). In identifying those physical or biological features within an area, we focus on the principal biological or physical constituent elements (primary constituent elements such as roost sites, nesting grounds, seasonal wetlands, water quality, tide, soil type) that are essential to the conservation of the species. Primary constituent elements are the specific elements of physical or biological features that provide for a species' life-history processes, and are essential to the conservation of the species.

Under the second prong of the Act's definition of critical habitat, we can designate critical habitat in areas outside the geographical area occupied by the species at the time it is listed, upon a determination that such areas are essential for the conservation



of the species. We designate critical habitat in areas outside the geographical area occupied by a species only when a designation limited to its range would be inadequate to ensure the conservation of the species.

Section 4 of the Act requires that we designate critical habitat on the basis of the best scientific data available. Further, our Policy on Information Standards Under the Endangered Species Act (published in the **Federal Register** on July 1, 1994 (59 FR 34271)), the Information Quality Act (section 515 of the Treasury and General Government Appropriations Act for Fiscal Year 2001 (Pub. L. 106-554; H.R. 5658)), and our associated Information Quality Guidelines, provide criteria, establish procedures, and provide guidance to ensure that our decisions are based on the best scientific data available. They require our biologists, to the extent consistent with the Act and with the use of the best scientific data available, to use primary and original sources of information as the basis for recommendations to designate critical habitat.

When we are determining which areas should be designated as critical habitat, our primary source of information is generally the information developed during the listing process for the species. Additional information sources may include the recovery plan for the species, articles in peer-reviewed journals, conservation plans developed by States and counties, scientific status surveys and studies, biological assessments, other unpublished materials, or experts' opinions or personal knowledge.

Habitat is dynamic, and species may move from one area to another over time.

We recognize that critical habitat designated at a particular point in time may not include all of the habitat areas that we may later determine are necessary for the recovery of the species. For these reasons, a critical habitat designation does not signal that habitat outside the designated area is unimportant or may not be needed for recovery of the species. Areas that are important to the conservation of the species, both inside and outside the critical habitat designation, will continue to be subject to: (1) Conservation actions implemented under section 7(a)(1) of the Act, (2) regulatory protections afforded by the requirement in section 7(a)(2) of the Act for Federal agencies to ensure their actions are not likely to jeopardize the continued existence of any endangered or threatened species, and (3) the Act's section 9 prohibitions on taking any individual of the species, indicating taking caused by actions that affect habitat. Federally funded or permitted projects affecting listed species outside their designated critical habitat areas may still result in jeopardy findings in some cases. These protections and conservation tools will continue to contribute to recovery of this species. Similarly, critical habitat designations made on the basis of the best available information at the time of designation will not control the direction and substance of future recovery plans, habitat conservation plans, or other species conservation planning efforts if new information available at the time of these planning efforts calls for a different outcome.

### **Acuña Cactus**

#### *Physical or Biological Features*

In accordance with sections 3(5)(A)(i) and 4(b)(1)(A) of the Act and regulations at 50 CFR 424.12, in determining which areas within the geographical area occupied by the species at the time of listing to designate as critical habitat, we consider the physical or biological features that are essential to the conservation of the species and which may require special management considerations or protection. These include, but are not limited to:

- (1) Space for individual and population growth and for normal behavior;
- (2) Food, water, air, light, minerals, or other nutritional or physiological requirements;
- (3) Cover or shelter;
- (4) Sites for breeding, reproduction, or rearing (or development) of offspring; and
- (5) Habitats that are protected from disturbance or are representative of the historical, geographic, and ecological distributions of a species.

We derive the specific physical or biological features required for the acuña cactus from studies of this species' habitat, ecology, and life history as described in the Critical Habitat section of the proposed rule to designate critical habitat published in the **Federal Register** on October 3, 2012 (77 FR 60509), and in the information presented below. Additional information can be found in the final listing rule (78 FR 60608; October 1, 2013). We have determined that the physical or biological features described below are essential for the acuña cactus.

Habitat for Individual and Population Growth, Including Sites for Germination,

## Pollination, Reproduction, Pollen and Seed Dispersal, and Seed Banks

*Pollination and Pollen Dispersal*—Preservation of the mix of species and interspecific interactions they encompass greatly improves the chances for onsite survival of rare species (Tepedino *et al.* 1996, p. 245). Bee nesting habitat, foraging plants, and corridors must be preserved to protect the acuña cactus (Buchmann 2012, pers. comm.; McDonald 2007, p. 4). The acuña cactus relies solely on the production of seeds for reproduction with pollination highly linked to the acuña cactus' survival. A lack of pollinators would lead to a reduction of seed production that would lead, in turn, to a gradual reduction in the seed bank (Wilcock and Neiland 2002, p. 276). Although viability of seed in the seed bank is unknown, germination trials in the greenhouse suggest the seeds are short-lived (Rutman 2007, p. 7).

Successful pollination depends on the pollinator species and the distance the pollinator can travel between flowers (McDonald 2005, p. 15). Acuña cacti are pollinated by a suite of bees from the Andrenidae, Anthophoridae, Anthophorinae, Halictidae, and Megachilidae families; however, the most abundant, robust, and consistent visitors in a 2-year study at OPCNM were the leafcutter bee (*Megachile palmensis*) and the cactus bee (*Diadasia rinconis*) (Johnson 1992, p. 406). Leafcutter and cactus bees are native cactus specialist bees requiring a sufficient quantity of acuña and other cacti pollen throughout their foraging season to provision their nests and support their own survivorship (Blair and Williamson 2008, p. 428).

No studies of pollinator dispersal distance have been conducted for the acuña cactus; however, in a study of a similar rare cactus in Arizona's Sonoran Desert, the *Coryphantha scheeri* var. *robustispina* (Pima pineapple cactus), McDonald (2005, p. 29) determined that the maximum distance the cactus bees travelled between Pima pineapple cactus individuals was 900 m (2,953 ft). The maximum distance travelled by the leafcutter bee is not known, though it is thought to be less than this (Buchmann 2012, pers. comm.). Because of the similarity of the acuña cactus and Pima pineapple cactus, we estimate that 900 m (2,953 ft) around individual acuña cacti is needed to support pollinator foraging, nesting, and survivorship.

Therefore, based on our review of the best available information, we identify a pollination area with a radius of 900 m (2,953 ft) around each individual acuña cactus plant as a physical or biological feature of acuña cactus habitat.

*Seed Dispersal, Germination, Growth, and Seed Banks*—Bare soils within the seed dispersal range of the acuña cactus are necessary for recruitment and soil seed banking. Primary and secondary dispersal of these seeds can occur via a number of mechanisms including gravity, ants, wind, or rain (Butterwick 1982 to 1992, entire; Rutman 1996b, pers. comm.; Rutman 2001, pers. comm.; Anderson 2011, p. 1). Primary dispersal is the movement of seeds short distances from the plant, whereas secondary dispersal involves the redistribution of seeds by living (e.g., insects) or non-living (e.g., wind) factors (van Rheede van Oudtshoorn and van Rooyen 1999, pp. 186–187).

As evidenced by their commonly clumped habit, the majority of the acuña cactus seeds are dispersed by gravity; that is, they fall very close to the mother plant, which serves as a nurse plant for germination (Johnson *et al.* 1993, p. 178). With this type of dispersal, the distance seeds travel is limited. The immediate environment of the mother plant is typically highly suitable for establishment, and closely dispersed seeds have a better chance of germination, establishment, and survival than seeds dispersed by other mechanisms (van Rheede van Oudtshoorn and van Rooyen 1999, p. 91).

Ants have been reported to both transport and consume the seeds of the acuña cactus (Butterwick 1982 to 1992, entire; Rutman 1996b, pers. comm.; Rutman 2001, pers. comm.; Anderson 2011, p. 1). Transported seeds may be dropped, discarded, or buried at either an appropriate or inappropriate depth for germination and emergence (van Rheede van Oudtshoorn and van Rooyen 1999, p. 15). Transported seed has the benefit of reduced competition from other seeds and reduced rodent predation that more commonly occurs near the mother plant (O'Dowd and Hay 1980, p. 536; Vander Wall *et al.* 2005, p. 802). The maximum distance seeds are dispersed by ants is typically less than 3 m (10 ft) and rarely more than 10 m (33 ft) (van Rheede van Oudtshoorn and van Rooyen 1999, p. 186).

The maximum distance seeds are dispersed by wind depends on many factors including the height of the plant, characteristics of the surrounding vegetation, seed mass and size, and wind conditions (van Rheede van Oudtshoorn and van Rooyen 1999, p. 186). Secondary dispersal by wind can be farther in deserts, where vegetation is widely

spaced and interspaces between trees and shrubs support wind velocities as much as four times higher than under trees and shrubs (van Rheede van Oudtshorn and van Rooyen 1999, p. 187). Wind-blown soil, litter, and small seeds accumulate under shrubs and trees, or in soil surface depressions (Shreve 1942, p. 205; van Rheede van Oudtshorn and van Rooyen 1999, p. 187).

Dispersal of seed from rain wash or sheet flow (downslope movement of water in a thin, continuous flow) over the ground is considered to occur across a relatively short distance; in hot deserts, many plants disperse seed by rain (van Rheede van Oudtshorn and van Rooyen 1999, pp. 69, 76). The distance that the acuña cactus seeds travel by either wind or water is not known; however, spacing of associated nurse trees and shrubs where soil, litter, and seed could accumulate is roughly 8 m (26 ft). This number was determined by using the average height of the largest tree associate, *Cercidium microphyllum* (palo verde) (Shreve 1942, pp. 202–203; Kearney and Peebles 1951, p. 407).

Therefore, based on our review of the best available information regarding the maximum distance that seeds may disperse, and within which the acuña cactus seed banks, seedling establishment, and seedling growth can occur, we identify bare soils immediately adjacent to and within 10 m (33 ft) of existing reproductive acuña cactus plants as a physical or biological feature of acuña cactus habitat.

Appropriate Geological Layers and Topography that Support Individual Acuña Cactus

## Plants

*Geology*—Bedrock and soil chemistry could help explain the current distribution of the acuña cactus across small islands of habitat in southern Arizona. Various reports describe the acuña cactus occurring on both fine- and coarse-textured soils derived from volcanic, granitic, and metamorphic rocks (Geraghty and Miller 1997, p. 3; Rutman 2007, pp. 1–2). Specifically, parent rock materials of preferred habitat include extrusive felsic volcanic rocks of rhyolite, andesite, and tuff, and intrusive igneous rocks composed of granite, granodiorite, diorite, and quartz monzonite (Rutman 2007, pp. 1–2).

We applied this knowledge of the acuña cactus geologic habitat preference by analyzing geology features and known plant locations attained for populations occurring within the United States using Geographic Information Systems (GIS). We determined 11 geologic feature classes that occur within the known locations of the acuña cactus in the United States (Arizona State Land Department 2012, GIS data layer). These feature classes can be summarized as volcanic rocks from the middle Miocene to Oligocene and from the Jurassic; granitoid rocks from the early Tertiary to Late Cretaceous and from the Jurassic; granitic rocks from the early Tertiary to Late Cretaceous; metamorphic rocks from the early Proterozoic; and surficial deposits from the Holocene to the latest Pliocene. Therefore, based on our review of the best available information regarding bedrock geology and associated soils required by the acuña cacti, we identify the presence of any one of these 11 feature classes as a physical or biological feature of acuña cactus habitat. These feature classes can be further summarized to include the



following rock types as identified in the literature for this species: rhyolite, andesite, tuff, granite, granodiorite, diorite, or Cornelia quartz monzonite (Rutman 2007, pp. 1, 2).

*Topography*—The acuña cactus is known to occur in valley bottoms and on ridge tops or small knolls, on slopes up to 30 percent (Phillips *et al.* 1982, p. 4; Geraghty and Miller 1997, p. 3). We applied this knowledge of the acuña topographic habitat preference by analyzing topography features using a digital elevation model in GIS. Therefore, based on our review of the best available information regarding topography, we identify valley bottoms, ridge tops, and small knolls with slopes of 30 percent or less as a physical or biological feature of acuña cactus habitat.

#### Appropriate Vegetation Community and Elevation Range That Support Individual Acuña Cactus Plants

*Nurse Plants*—Known populations of acuña cactus have been reported from between 365 and 1,150 m (1,198 to 3,773 ft) elevation within the paloverde-cacti-mixed scrub series of the Arizona Upland Subdivision of the Sonoran Desert-scrub (Brown 1994, p. 200; Arizona Rare Plant Guide Committee 2001, unnumbered pages; Arizona Game and Fish Department (AGFD) 2011, entire). This scrubland or low woodland contains leguminous trees, shrubs, and succulents including palo verde, *Olneya tesota* (ironwood), *Larrea tridentata* var. *tridentata* (creosote bush), *Ambrosia* spp. (bursage), and *Carnegiea gigantea* (saguaro). The acuña cactus seedlings benefit from the protection of these native Sonoran Desert trees and shrubs, as well as other larger acuña cacti that

act as nurse plants by providing protection from temperature extremes and physical damage (Felger 2000, p. 208; Johnson *et al.* 1993, p. 178). The acuña cactus individuals are generally more robust next to nurse plants, as opposed to in open, exposed locations (Felger 2000, p. 208). Therefore, based on the information above, we identify the presence of creosote bush, ironwood, palo verde, and other native protective plants to be a physical or biological feature necessary for acuña cactus habitat.

*Native Vegetation Dominance*—The acuña cactus habitat should be relatively free from perennial grass invaders as these alter structure, function, dominance, and disturbance regimes, and have been shown to drastically lower species diversity within the Sonoran Desert (Olsson *et al.* 2012, p. 10). Such changes have great potential to impact acuña cacti and their pollinators. In addition, such introduced grasses as *Pennisetum ciliare* (buffelgrass) form continuous mats and remove open bare ground for nesting bees such as *Diadasia* spp. (Buchmann 2007, p. 13). These bees move nesting sites yearly to shed parasites, thereby requiring the continued availability of sandy, well-drained, bare ground available to create nests (Buchmann 2012, pers. comm.). Therefore, based on our review of the best available information, we identify Sonoran Desert-scrub habitat dominated by native plant species to be a physical or biological feature necessary for acuña cactus habitat.

#### *Primary Constituent Elements for the Acuña Cactus*

Under the Act and its implementing regulations, we are required to identify the

physical or biological features essential to the conservation of acuña cactus in areas occupied at the time of listing, focusing on the features' primary constituent elements. We consider primary constituent elements to be the elements of physical or biological features that provide for a species' life-history processes and are essential to the conservation of the species.

Based on our current knowledge of the physical or biological features and habitat characteristics required to sustain the species' life-history processes, we determine that the primary constituent elements specific to the acuña cactus are:

(i) Native vegetation within the Paloverde-Cacti-Mixed Scrub Series of the Arizona Upland Subdivision of the Sonoran Desert-scrub at elevations between 365 to 1,150 m (1,198 to 3,773 ft). This vegetation must contain predominantly native plant species that:

- a. Provide protection to the acuña cactus. Examples of such plants are creosote bush, ironwood, and palo verde.
- b. Provide for pollinator habitat with a radius of 900 m (2,953 ft) around each individual, reproducing acuña cactus.
- c. Allow for seed dispersal through the presence of bare soils immediately adjacent to and within 10 m (33 ft) of individual acuña cactus.

(ii) Soils overlying rhyolite, andesite, tuff, granite, granodiorite, diorite, or Cornelia quartz monzonite bedrock that are in valley bottoms, on small knolls, or on

ridgetops, and are generally on slopes of less than 30 percent.

### *Special Management Considerations or Protection*

When designating critical habitat, we assess whether the specific areas within the geographical area occupied by the species at the time of listing contain features which are essential to the conservation of the species and which may require special management considerations or protection. All areas designated as critical habitat as described below may require some level of management to address the current and future threats to the physical or biological features essential to the conservation of the acuña cactus. In all of the described units, special management may be required to ensure that the primary constituent elements for the cactus are conserved and the habitat provides for the biological needs of the cactus. Some of the management activities that could ameliorate these threats include, but are not limited to, those discussed below.

- (1) Practice livestock grazing in a manner that maintains, improves, and expands the quantity and quality of Sonoran desertscrub habitat. Special management considerations or protection may include the following: manage livestock grazing sustainably with the natural landscape by determining appropriate areas, seasons, and use consistent within the carrying capacity of rangeland in response to current and future drought and warming trends; improve monitoring and documentation of grazing practices; manage cattle and feral hoofed mammals (ungulates) (e.g., burros) to reduce the risk of plants trampled and soil compaction; and manage for other small

mammal species to restore desired processes to increase habitat quality and quantity.

- (2) Minimize construction of new border control facilities, roads, towers, or fences.

Special management considerations or protections may include the following: protect lands that support suitable habitat such that destruction of individual plants and their habitat is minimized and habitat is preserved.

- (3) Manage or protect native Sonoran desertscrub vegetation communities from recreational impacts. Special management considerations or protection may include the following: manage trails, campsites, and off-road vehicles (ORVs); reduce the likelihood of wildfires affecting the acuña cactus populations and nearby plant communities.

- (4) Protect suitable habitat from mineral development and associated infrastructure (new access roads). These activities could result in direct plant and habitat loss, or alteration by removing or degrading soils to such an extent that the soils would no longer support the growth of the acuña cactus. Special management considerations or protection may include the following: protect lands that support suitable habitat such that destruction is minimized and habitat is preserved.

- (5) Manage for nonnative, invasive species, such as buffelgrass, by minimizing conditions that may promote or encourage encroachment or establishment of nonnative, invasive species and restore or reestablish conditions that allow native plants to thrive. Within the range of the acuña cactus, the establishment and success of nonnative, invasive species has been a result of historic land use and management practices such as grazing, wildfire suppression actions, mining, and ORV use.

Actions have been taken by some land management agencies to reduce the spread of

invasive species and reduce the risk of wildfire they pose from creating fine fuel loads. Nonnative, invasive species occur near acuña cactus populations and may pose a threat through competition for resources or increase the risk of fire. Special management considerations or protection may include the following: prevent or restrict establishment of nonnative, invasive species; minimize ground-disturbing activities that may facilitate their spread; conduct post-disturbance restoration activities such as native plant propagation; practice active removal of nonnative, invasive plant species and targeted herbicide application (provided herbicides can be shown not to negatively impact the acuña cactus or the native pollinators); and improve monitoring and documentation on a site-by-site basis where nonnative, invasive species are present in occupied habitat to assess any effect (beneficial or negative) they pose of the cactus.

These management activities will protect the physical or biological features essential to the conservation of the acuña cactus by reducing the direct and indirect effects of habitat loss, alteration, or fragmentation; preserving the geology and soils that form the basis of its habitat; and maintaining the native vegetation communities and pollinators.

In summary, the primary constituent elements of the acuña cactus habitat may be impacted by livestock grazing; U.S.–Mexico border activities; recreational impacts; mineral development and associated transportation infrastructure; and nonnative, invasive species. Currently some of these threats are not identified to occur at a level that

threatens populations with extirpation; however, without management of these threats, they could rise to this level. The units designated as critical habitat within the geographical area occupied by the species at the time of listing contain the physical or biological features essential to the conservation of the acuña cactus. Special management considerations or protection may be required to eliminate, or reduce to a negligible level, the threats affecting each unit or subunit and to preserve and maintain the essential features that the critical habitat units and subunits provide to the cactus.

#### *Criteria Used To Identify Critical Habitat*

As required by section 4(b)(2) of the Act, we use the best scientific data available to designate critical habitat. We reviewed available information pertaining to the habitat requirements of the species. In accordance with the Act and its implementing regulations at 50 CFR 424.12(b), we considered whether designating additional areas—outside those currently occupied as well as those occupied at the time of listing—are necessary to ensure the conservation of the species. We are designating critical habitat in areas within the geographical area occupied by the species at the time of listing as described in the final rule to list the acuña cactus and the Fickeisen plains cactus (see the “Distribution and Range” section of the final listing rule (78 FR 60608, October 1, 2013)) and that contain one or more of the identified primary constituent elements. We are not designating any additional areas outside those currently occupied by the species as critical habitat for acuña cactus.

We reviewed available information and supporting data that pertain to the habitat requirements of the acuña cactus. This information included research published in peer-reviewed articles and presented in academic theses and agency reports, as well as data collected from long-term monitoring plots, interviews with experts, and regional climate data and GIS coverage. Sources of information include, but are not limited to: Brown 1994, Buchmann 2007, Butterwick 1982–1992, Felger 2000, Holm 2006, Johnson 1992, Johnson *et al.* 1993, McDonald 2007, Olsson *et al.* 2012, Phillips *et al.* 1982, National Park Service 2011a, National Park Service 2011b, Rutman 2007, van Rheede van Oudtshorn and van Rooyen 1999, and Western Regional Climate Center 2012. Based on this information, we developed a strategy for determining which areas meet the definition of critical habitat for acuña cactus.

#### Occupied Area at the Time of Listing

In identifying proposed critical habitat units for acuña cactus, we proceeded through a multi-step process. We obtained all records for acuña cactus distribution from AGFD, as well as both published and unpublished documentation from our files. There is no information on the historical range of this species; survey results confirm that plant distribution in the United States comprises disjunct occupied habitat in two general areas of south-central Arizona.

Our approach to delineating critical habitat units was applied in the following manner:



(1) We overlaid acuña cactus locations into a GIS database. This provided us with the ability to examine slope, aspect, elevation, geologic type, vegetation community, and topographic features. These data points verified and slightly expanded the previously recorded elevation ranges for acuña cactus.

(2) In addition to the GIS layers listed above, we then included a 900-m (2,953-ft) pollination area around known populations to ensure that all potential pollinators would have a sufficient land base to establish nesting sites and to provide pollinating services for acuña cactus, as described in *Physical or Biological Features* for the acuña cactus above.

(3) We then drew critical habitat boundaries that captured the locations elucidated under (1) and (2) above. Critical habitat designations were then mapped using Albers Equal Area (Albers) North American Datum 83 (NAD 83) coordinates.

We defined six critical habitat units and subunits within the current distribution of the species in two general areas of south-central Arizona. The units and subunits contain approximately 2,580 individuals. Within these units and subunits, several geologic, topographic, elevation, slope, and vegetation community features have been defined, which in combination create acuña cactus habitat that is essential to the conservation of the species, though not all lands containing this combination support the acuña cacti. Although we no longer regard additional unoccupied areas as essential for the

conservation of the species (refer to the revised proposed critical habitat designation for the acuña cactus and the Fickeisen plains cactus (78 FR 40673, July 8, 2013), we recognize that areas containing the physical or biological features necessary for the acuña cactus and which receive higher precipitation levels may be useful for *ex situ* (offsite) conservation measures at a future time.

When determining critical habitat boundaries, we made every effort to avoid including developed areas such as lands covered by buildings, pavement, and other structures because such lands lack physical or biological features for the acuña cactus. The scale of the maps we prepared under the parameters for publication within the Code of Federal Regulations may not reflect the exclusion of such developed lands. Any such lands inadvertently left inside critical habitat boundaries shown on the maps of this final rule have been excluded by text and are not designated as critical habitat. Therefore, a Federal action involving these lands would not trigger section 7 consultation with respect to critical habitat and the requirement of no adverse modification unless the specific action would affect the physical or biological features in the adjacent critical habitat.

The critical habitat designation is defined by the map or maps, as modified by any accompanying regulatory text, presented at the end of this document in the rule portion.

We include more detailed information on the boundaries of the critical habitat designation in the preamble of this document. We will make the coordinates or plot points or both on which each map is based available to the public on

<http://www.regulations.gov> at Docket No. FWS–R2–ES–2013–0025, on our Internet sites

<http://www.fws.gov/southwest/es/arizona/>, and at the field office responsible for the designation (see **FOR FURTHER INFORMATION CONTACT** above).

*Critical Habitat Designation for the Acuña Cactus*

We are designating six units as critical habitat for the acuña cactus. The critical habitat areas we describe below constitute our current best assessment of areas that meet the definition of critical habitat for the acuña cactus. The six units we are designating as critical habitat are: (1) Organ Pipe Cactus National Monument, (2) Ajo, (3) Saucedá Mountains, (4) Sand Tank Mountains, (5) Mineral Mountain, and (6) Box O Wash. All six units were occupied by the acuña cactus at the time of listing. The approximate area of each critical habitat unit is shown in Table 1.

**TABLE 1.— Designated critical habitat units for the acuña cactus.**

Unit or Subunit	Federal		State		Private		Total	
	Ha	Ac	Ha	Ac	Ha	Ac	Ha	Ac
1—Organ Pipe Cactus National Monument Unit	2,416	5,971	0	0	0	0	2,416	5,971
2—Ajo Townsites Subunit	89	220	0	0	330	815	419	1,035
2—Ajo Little Ajo Mountains Subunit	106	263	0	0	141	347	247	610
3—Sauceda Mountains Unit	1,102	2,724	0	0	0	0	1,102	2,724
4—Sand Tank Mountains Unit	549	1,355	0	0	0	0	549	1,355

5—Mineral Mountain Unit	570	1,408	217	537	0	0	787	1,945
6—Box O Wash Subunit A	4	9	1,348	3,332	369	913	1,721	4,253
6—Box O Wash Subunit B	0	0	158	391	102	251	260	642
Total	4,836	11,950	1,723	4,260	942	2,326	7,501	18,535

Note: Area sizes may not sum due to rounding.

We present brief descriptions of all units, and reasons why they meet the definition of critical habitat for the acuña cactus, below.

#### Unit 1: Organ Pipe Cactus National Monument

The unit consists of 2,416 ha (5,971 ac) within OPCNM in southwestern Pima County, Arizona. The unit is on federally owned land administered by the National Park Service. Land within this unit was occupied at the time of listing with the largest known population of the acuña cactus, approximately 2,000 individuals. This unit contains all of the primary constituent elements of the physical or biological features essential to the conservation of the acuña cactus. This unit helps to maintain the geographical range of the species and provide opportunity for population growth. This unit also provides a core population of the species.

Grazing and mining are not permitted within OPCNM; however, nonnative, invasive species issues and off-road border-related activities do occur in OPCNM.

Special management considerations or protection may be required within this unit to address off-road border-related human disturbances or to prevent or remove nonnative, invasive species within the acuña cactus habitat.

## Unit 2: Ajo

Unit 2 is located in and near the town of Ajo in southwestern Pima County, Arizona. The unit consists of two subunits totaling 666 ha (1,645 ac). This unit contains 195 ha (483 ac) of federally owned land and 470 ha (1,162 ac) of private land. The Federal land is administered by the BLM. This entire unit helps to maintain the geographical range of the species and provide opportunity for population growth. This unit also provides a core population of the species.

*Subunit 2a: Townsites*—Subunit 2a consists of 330 ha (815 ac) of private land and 89 ha (220 ac) of BLM land in and around the town of Ajo, Arizona. This subunit comprises four separate populations of the acuña cactus on private and BLM lands, which are close enough in proximity to be combined within the 900-m (2,953-ft) radius defined for pollinators. Lands within this subunit are occupied at the time of listing; the combined number of plants occurring within this subunit is 70. This subunit contains all of the primary constituent elements of the physical or biological features essential to the conservation of the acuña cactus.

*Subunit 2b: Little Ajo Mountains*—Subunit 2b consists of 106 ha (263 ac) of BLM

lands and 141 ha (347 ac) of private lands south of the town of Ajo, Arizona. Lands within this subunit are occupied at the time of listing, containing seven individual plants. This subunit contains all of the primary constituent elements of the physical or biological features essential to the conservation of the acuña cactus.

The features essential to the conservation of the species within both subunits are threatened by mining; urban development; off-road U.S.–Mexican border activities; and nonnative, invasive species issues. Special management considerations or protection may be required within the subunits to minimize habitat fragmentation; to minimize disturbance to acuña cactus individuals, soil, and associated native vegetation; and to prevent or remove nonnative, invasive species within the acuña cactus habitat.

### Unit 3: Saucedo Mountains

Unit 3 is located in the Saucedo Mountains of northwestern Pima and southwestern Maricopa Counties, Arizona. We are excluding approximately 156 ha (385 ac) of Tohono O’odham land and exempting 378 ha (935 ac) of BMGR land from this unit, leaving 1,102 ha (2,724 ac) of federally owned land administered by the BLM (refer to the **Exclusions** and **Exemptions** sections of the preamble to this rule). This unit comprises four separate populations that are close enough in proximity as to be combined within the 900-m (2,953-ft) radius defined for pollinators. Lands within this unit were occupied at the time of listing; the combined number of plants occurring within this unit is 212. This subunit contains all of the primary constituent elements of the physical or

biological features essential to the conservation of the acuña cactus. This unit helps to maintain the geographical range of the species and provide opportunity for population growth. This unit also provides a core population of the species.

The features essential to the conservation of the species within the unit are threatened by mining; grazing; nonnative, invasive species issues; and off-road U.S.–Mexican border activities. Special management considerations or protection may be required within the unit to minimize habitat fragmentation; to minimize disturbance to individual acuña cactus individuals, soil, and associated native vegetation; and to prevent or remove nonnative, invasive species within acuña cactus habitat.

#### Unit 4: Sand Tank Mountains

Unit 4 consists of 549 ha (1,355 ac) within the Sonoran Desert National Monument of southwestern Maricopa County, Arizona. The unit is on federally owned land administered by the BLM. Land within this unit was occupied at the time of listing; the combined number of plants occurring within this unit is 200 individuals in 3 separate populations. This unit contains all of the primary constituent elements of the physical or biological features essential to the conservation of the acuña cactus. This unit helps to maintain the geographical range of the species and provide opportunity for population growth. This unit also provides a core population of the species.

Grazing and mining are not permitted within the Sonoran Desert National

Monument; however, off-road border-related activities; nonnative, invasive species issues; and trespass livestock grazing may occur in this unit. Special management considerations or protection may be required within this unit to minimize disturbance to acuña cactus individuals, the soil, and associated native vegetation; and to prevent or remove nonnative, invasive species within acuña cactus habitat.

#### Unit 5: Mineral Mountain

Unit 5 consists of 787 ha (1,945 ac) on Mineral Mountain of north-central Pinal County, Arizona. This unit contains 570 ha (1,408 ac) of federally owned land and 217 ha (537 ac) of State-owned land. The Federal land is administered by the BLM (569 ha (1,406 ac)) and the Bureau of Reclamation (1 ha (2 ac)).

This unit contains 5 separate known populations totaling 33 individuals on lands administered by the BLM and the State of Arizona. This unit contains all of the primary constituent elements of the physical or biological features essential to the conservation of the acuña cactus. This unit helps to maintain the geographical range of the species and provide opportunity for population growth. This unit also provides a core population of the species.

Livestock grazing and ORV activity occur in this unit, and mining occurs nearby. Nonnative, invasive species issues may occur in or nearby this unit. Special management considerations or protection may be required within the unit to minimize habitat



fragmentation; to minimize disturbance to acuña cactus individuals, soil, and associated native vegetation; and to prevent or remove nonnative, invasive species within acuña cactus habitat.

#### Unit 6: Box O Wash

Unit 6 is located near Box O Wash of north-central Pinal County, Arizona. This unit consists of two subunits totaling 1,981 ha (4,895 ac). This unit contains 4 ha (9 ac) of federally owned land, 1,506 ha (3,722 ac) of State-owned land, and 471 ha (1,164 ac) of privately owned land. The Federal land is administered by the BLM. This entire unit helps to maintain the geographical range of the species and provide opportunity for population growth. This unit also provides a core population of the species.

*Subunit 6a: Box O Wash A*—Subunit 6a consists of 4 ha (9 ac) of BLM land, 369 ha (913 ac) of private land, and 1,348 ha (3,332 ac) of State land east of Florence, Arizona. This subunit comprises two separate populations of the acuña cactus on private and State-owned lands, which are close enough in proximity to be combined within the 900-m (2,953-ft) radius defined for pollinators. Lands within this subunit were occupied at the time of listing; the combined number of plants occurring within this subunit is 11. This subunit contains all of the primary constituent elements of the physical or biological features essential to the conservation of the acuña cactus.

*Subunit 6b: Box O Wash B*—Subunit 6b consists of 158 ha (391 ac) of State-

owned land and 102 ha (251 ac) of private land east of Florence, Arizona. This subunit comprises one population of the acuña cactus on State-owned land; the 900-m (2,953-ft) radius defined for pollinators overlaps into private land. This area was surveyed twice in 2008, with 32 living acuña cacti found in 1 survey and 45 in a second survey. A 2011 survey resulted in no living plants located; however, this was not a complete survey of the area. Since the 2011 survey was not a comprehensive survey, and a relatively large number of plants were found here in 2008, we assume the plants still occur in this subunit. Therefore, we consider lands within this subunit occupied at the time of listing. This subunit contains all of the primary constituent elements of the physical or biological features essential to the conservation of the acuña cactus.

Livestock grazing and ORV activity occur within both subunits, and mining occurs nearby. Nonnative, invasive species issues may occur in or nearby this unit. Special management considerations or protection may be required within the subunits to minimize habitat fragmentation; to minimize disturbance to acuña cactus individuals, soil, and associated native vegetation; and to prevent or remove nonnative, invasive species within acuña cactus habitat.

### **Fickeisen Plains Cactus**

#### *Physical or Biological Features*

We derive the specific physical or biological features required for the Fickeisen

plains cactus from studies of the species' habitat, ecology, and life history as described below. We have determined that the Fickeisen plains cactus requires the following physical or biological features:

#### Appropriate Topography and Elevation Range that Support Individual Fickeisen Plains Cactus Plants

The Fickeisen plains cactus is a narrow endemic with a wide distribution on the Colorado Plateau in Coconino and Mohave Counties, Arizona. Populations are found at elevations from 1,280 to 1,814 m (4,200 to 5,950 ft) with approximately 1,132 plants in 33 populations documented within an 8,668-square-kilometer (sq km) (3,347-square-mile (sq mi)) range. About 90 percent of individuals occur in Coconino County.

The Colorado Plateau consists of a series of subplateaus that are dissected by major structural features (Foos 1999, pp. 2–4). The Fickeisen plains cactus is found on several subplateaus and tablelands including the Coconino, Kaibab, Kanab, Shivwits, and Uinkaret Plateaus, and House Rock Valley. These landforms are characterized by normal faults (Hurricane, Toroweap, and Sevier Faults), monoclines (Grandview and Black Point Monoclines), synclines (Cataract Syncline), deep-seated canyons (Marble Canyon, Cataract Canyon of the Grand Canyon), and deep washes (Mays Wash) (Billingsley and Dyer 2003, p. 3; Billingsley *et al.* 2006, pp. 1–3; Billingsley *et al.* 2007, pp. 2–3), which form boundaries separating the subplateaus, and act as topographic barriers isolating populations of the Fickeisen plains cactus.

The Fickeisen plains cactus is found exclusively on limestone soils derived predominantly from the Harrisburg Member of the Kaibab Formation. The Harrisburg Member consists of reddish-gray and brownish-gray, slope-forming gypsum, siltstone, sandstone, and limestone; and includes an upper, middle, and lower part. The upper bed consists of gray, cherty limestone that forms the bedrock surface while the middle unit comprises thick, cliff-forming limestone beds and the lower bed consists of slope-forming gypsiferous siltstone, sandstone, limestone, and gypsum (Billingsley 2000, pp. 3–4).

Folding and uplifting of bedrock, basalt flows, and erosional processes across the Colorado Plateau exposes other sedimentary rock formations found in occupied habitat. The Hurricane Cliffs exposes the Kaibab Formation on the upper part and much of the bedrock surface of the Shivwits and Uinkaret Plateaus, while siltstone, sandstone, and limestone of the Toroweap Formation is well exposed on the lower steep slopes and ledges (Billingsley and Dyer 2003, pp. 3–4). East of the Hurricane Cliffs and in the habitat of the Clayhole Wash population, ledge-forming limestone beds that are separated by slopes of gypsiferous siltstone of the Moenkopi Formation are exposed under Quarternary basalt flows (Billingsley 1994, p. 2). Erosional unconformities separate the Kaibab and Moenkopi Formations in this area (Billingsley *et al.* 2002, p. 3). In House Rock Valley, the Kaibab Formation forms most of the bedrock surface and rims along Marble Canyon. In some places, the Kaibab Formation is covered by siltstone and sandstone of the Moenkopi Formation (Billingsley and Priest 2010, p. 5).

Exposed limestone surfaces include mesas, plateaus, fan terraces, flat to gentle sloping hills, along canyon rims, and washes, which provide habitat to support the cactus. Individuals are found on the western, southwestern, and southern-facing exposures with slopes less than 20 percent (Arizona Rare Plant Committee 2001; AGFD 2011a, p. 2), although most plants are observed on slopes less than 10 percent. The surface material is derived from the erosion of limestone and sandstone in the form of alluvium, colluvium, or eolian deposits.

Based on the above information, we identify mesas, plateaus, terraces, flat to gently sloping hills less than 20 percent slope; margins of canyon rims and desert washes that are overlain with alluvium, colluvium, or eolian deposits, or eolian sand over alluvium; alluvium derived predominantly from limestone of the Harrisburg Member of the Kaibab Formation; and limestone, siltstone, and sandstone of the Toroweap and Moenkopi Formations as a physical or biological feature essential to the conservation of the Fickeisen plains cactus.

#### Appropriate Soil Structure and Vegetation Community that Support Individual Fickeisen Plains Cactus Plants

The presence of unique soil structure and chemistry may determine where a rare plant species exists. The Fickeisen plains cactus is found on gravelly limestone soils underlain by alluvium. There are several soil series associations that support the

Fickeisen plains cactus (Table 2). These share common properties or characteristics of soil that is well-drained, nonsaline to slightly saline with a soil pH from 7.9 to 8.4 (NatureServe 2011; Natural Resources Conservation Service (NRCS) 2012), and shallow (15 to 51 cm (6 to 20 in) to bedrock), although some are moderately deep to very deep (more than 203 cm (80 in) to bedrock). Most Fickeisen plains cacti are found in shallow soils. Fewer plants are found on deeper soils, but these plants may not persist long-term from being water logged after rainstorms or subjected to debris flows. The texture of the surface layer includes gravelly loam, fine sandy loam, gravelly sandy loam, clay loam, cobbly loam, and stony loam (NRCS 2012). The fine-textured and very loose soil texture may enable the plant to be completely buried once retracted (Navajo National Heritage Program (NNHP) 1994, p. 3), thereby protecting the apex from exposure to low temperatures during the winter season. The habitat is also stable with little soil movement following runoff events.

**TABLE 2.—Soil class associated with the Fickeisen plains cactus habitat.**

<b>Soil Series Classification</b>	<b>Percent Slope</b>
Dutchman-McCullan complex	1–10
Kinan gravelly loam	1–15
Kinan-Pennell complex	4–15
Mellenthin very gravelly loam	1–25
Mellenthin-Progresso complex	1–7
Mellenthin-Rock outcrop-Torriorthents complex	10–70
Mellenthin-Tanbark complex	5–50
Moenkopie-Goblin complex	5–50
Monierco clay loam	2–15
Monue-Seeg complex	1–6

Pennell cobbly loam	3–10
Pennell gravelly sandy loam	20–45
Saido-Brinkerhoff complex	1–5
Strych very gravelly loam	2–10
Twist sandy loam	2–10
Winona gravelly loam	0–8
Winona stony loam	0–8
Winona-Boysag gravelly loams	0–8
Winona-Rock outcrop complex	15–30 and 30–70

The Fickeisen plains cactus is primarily found in sparsely vegetated areas in full sun. However, habitat in Mohave County, Arizona, supports dense patches of grasses and desert shrubs. Adult Fickeisen plains cacti that are growing underneath a shrub canopy or in partially shaded clumps of grama grass have been observed to be larger and fuller than those growing in fully open areas (Robertson 2011, p. 1). Similar observations have been reported on the Navajo Nation (NNHP 1994, p. 4). Some amount of canopy cover may create suitable microhabitat conditions that enhance Fickeisen plains cactus' survival by providing protection from the sun and wind, and by decreasing the rate of evapotranspiration (Milne 1987, p. 34).

Microbiologic soil crusts are present across areas of the Colorado Plateau and occur near the Fickeisen plains cactus (United States Forest Service (USFS) 1999, entire; BLM 2007a, pp. 3–15). Biological soil crusts are formed by a community of living organisms that can include cyanobacteria, green algae, microfungi, mosses, liverworts, and lichens (Belnap 2006, pp. 361–362). These crusts provide many positive benefits to the larger vegetation community by providing fixed carbon and nitrogen on sparsely

vegetated soils, soil stabilization and erosion control, water infiltration, improved plant growth, and seedling germination (Rychert *et al.* 1978, entire; NRCS 1997, pp. 8–10; Floyd *et al.* 2003, p. 1704; Belnap 2006, entire). Although there is no information indicating a relationship between the Fickeisen plains cactus and benefits derived from the soil crust, their presence supports native desert vegetation that also supports the Fickeisen plains cactus habitat.

The specific physiological and soil nutritional needs of the Fickeisen plains cactus are not known at this time. Locations containing apparently suitable habitat on the Arizona Strip have been searched between the years of 1986 and 2010, and no additional individuals or populations have been found to date. The factors limiting the taxon's distribution are unknown, but could be related to microsite differences (such as nutrient availability, soil microflora, soil texture, or moisture). Although we do not have information to fully explain what components the plant prefers, a preliminary soil study on the Kaibab National Forest suggested that sites having higher density of plants occur in gravelly soils and these have higher levels of micro and macro nutrients compared to sandier soils where fewer plants are found. The higher amounts of potassium, nitrate, sodium, zinc, copper, and soluble phosphate in the gravelly soil may be a result of weathering over time (MacDonald (USFS) 2013, pers. comm.). While further investigation is warranted at other populations, it may help distinguish the quality of habitat for the taxon across its range.

Based on the above information, we identify soils from the appropriate soil series



that are well-drained, shallow to moderately deep, stable, and consist of gravelly loam, fine sandy loam, gravelly sandy loam, clay loam, and cobbly loam with limestone and chert gravel as a physical or biological feature essential to the conservation of the Fickeisen plains cactus.

#### Habitat for Individual and Population Growth, Including Sites for Germination, Pollination, Reproduction, Pollen and Seed Dispersal, and Seed Banks

The Fickeisen plains cactus habitat is found within the Great Basin Desert and is associated with the Plains and Great Basin grasslands and Great Basin desertscrub (Benson 1982, p. 764; NatureServe 2011). Dominant native plant species that are commonly associated with these biotic communities include: *Artemisia tridentata* (sagebrush), *Atriplex canescens* (four-wing saltbush), *Atriplex confertifolia* (shadscale), *Bouteloua eriopoda* (black grama), *Bouteloua gracilis* (blue grama), *Bromus* spp. (brome), *Chrysothamnus* spp. (rabbit-bush), *Ephedra torreyana* (Mormon tea), *Kraschenninikovia lanata* (winterfat), *Gutierrezia sarothrae* (broom snakeweed), *Pleuraphis jamesii* (James's galleta), *Achnatherum hymenoides* (Indian ricegrass), *Sphaeralcea* spp. (globe-mallow), and *Stipa* spp. (needlegrass). Other native species that are commonly found include *Agave utahensis* (century plants), *Echinocactus polycephalus* spp. and *Escobaria vivipara* var. *rosea* (foxtail cactus) (Brown 1994, pp. 115–121; Turner 1994, pp. 145–155; Hughes 1996b, p. 2; Goodwin 2011a, p. 4; NatureServe 2011).

These grasslands also support native annuals and perennial flowering plants that support a diversity of native bees and insect pollinators, which are essential for Fickeisen plains cactus reproduction. Reproduction for plant species within the genera of *Pediocactus* occurs by cross-pollination (Pimienta-Barrios and del Castillo 2002, p. 79). Pollinators observed visiting flowers of the Fickeisen plains cactus include hover flies (family Syrphidae), bee flies (family Bombyliidae), mining bees (family Andrenidae), and sweat bees (family Halictidae) (Milne 1987, p. 21; NNHP 1994, p. 3). Although flies may pollinate flowers of the Fickeisen plains cactus when they eat pollen or nectar, the primary pollinators for the Fickeisen plains cactus are believed to be halictid bees from the genera *Lasioglossum*, *Halictus*, and *Agapostemon*, based on several studied species of *Pediocactus* (Tepedino 2012, pers. comm.).

Since pollination is essential to the conservation of the Fickeisen plains cactus, we evaluated alternatives for determining the effective pollinator distance for the taxon. Foraging distances vary by species and body size (Greenleaf *et al.* 2007, p. 592), but the typical flight distances of halictid bees in the genera *Lasioglossum* are 10 to 410 m (33 to 1,345 ft). The foraging distance for the largest bodied bee in the genera *Agapostemon* (sweat bees in the Family Halictidae) is approximately 1,000 m (3,280 ft) (Tepedino 2012, pers. comm.). We believe 1,000 m (3,280 ft) represents a reasonable estimate of the area needed around the Fickeisen plains cactus population to provide sufficient habitat for the pollinator community. As noted above, many other insects likely contribute to the pollination of this species, and some may travel greater distances than others. However, these pollinators may also forage, nest, overwinter, or reproduce within

1,000 m (3,280 ft) of Fickeisen plains cactus. As a result, we considered the Fickeisen plains cactus pollinator area to be 1,000 m (3,280 ft) around individual plants, based on the rationale that pollinators using habitat farther away may not be as likely to contribute to the conservation and recovery of this species.

The Fickeisen plains cactus relies solely on the production of seed for reproduction (Pimienta-Barrios and del Castillo 2002, p. 79). Optimal seed set occurs through visitation and pollination by native bees and other insect pollinators. Seed production in the Fickeisen plains cactus is considered to be low (Hughes 2011, pers. comm.), and most species of *Pediocactus* have poor seed dispersal mechanisms (Benson 1982, p. 750). We do not know the soil moisture, nutrient, or temperature requirements for Fickeisen plains cactus germination. Seedlings are often observed near the parent plant (Goodwin 2011a, p. 9) and do better when shade is provided by a parent or nurse rock (Nobel 1984, p. 316; Milne 1987, p. 34).

Maintaining genetic diversity is essential for persistence of the Fickeisen plains cactus because of its endemism, small population size, and disjunct populations (Tepedino *et al.* 1996, p. 245). In general, maintaining adequate populations of the Fickeisen plains cactus' primary pollinators, which likely depends on the presence and diversity of other native plant species in sufficient numbers within, near, and between populations, is essential to facilitate gene flow (NatureServe 2011). Moreover, maintaining areas with a high diversity of native plant species is necessary to sustain populations of native pollinators (Peach *et al.* 1993, p. 314). Low numbers of abundant

flowers offering little reward can lead to low rates of plants visited by pollinators (Wilcox and Neiland 2002, pp. 272–273). As the Fickeisen plains cactus does not reproduce vegetatively, pollination is highly linked to their survival. A lack of pollinators would gradually decrease the number of seeds in the seed bank and the conservation potential for the Fickeisen plains cactus (Wilcock and Neiland 2002, p. 276).

Therefore, based on the best available information above, we identify a pollination area with a radius of 1,000 m (3,280 ft) around each Fickeisen plains cactus that includes native vegetation of the Great Basin desertscrub and Plains and Great Basin grasslands, and habitat for pollinators as a physical or biological feature essential to the conservation of the Fickeisen plains cactus.

#### Habitats That Are Protected from Disturbance or Representative of the Historical, Geographical, and Ecological Distribution of the Species

The Fickeisen plains cactus has a restricted geographical distribution. Endemic species whose populations exhibit a high degree of isolation are extremely susceptible to extinction from random and non-random, catastrophic, natural or human-caused events. Therefore, the conservation of the Fickeisen plains cactus is dependent on several factors, including, but not limited to: (1) Maintenance of areas of sufficient size and configuration to sustain natural ecosystem components, functions, and processes (such as sun exposure, native shrubs or grasses that provide microhabitats for seedlings, natural fire and hydrologic regimes, preservation of biological soil crusts that support the surrounding

vegetation community, and adequate biotic balance to prevent excessive herbivory); (2) protection of the existing substrate continuity and structure; (3) connectivity among clusters of plants within geographic proximity to facilitate gene flow among these sites through pollination activity and seed dispersal; and (4) sufficient adjacent suitable habitat for reproduction and population expansion.

A natural, generally intact surface and subsurface that is free of inappropriate disturbance associated with land use activities (such as trampling and soil compaction from livestock grazing) and associated physical processes such as the hydrologic regime are necessary to provide water, minerals, and other physiological needs for the Fickeisen plains cactus. A natural intact surface and subsurface includes the preservation of soil qualities (texture, slope, rooting depth) to enable the seasonal ability of plants to retract below the subsurface to enter dormancy, but emerge when conditions are favorable. A natural hydrologic regime includes the seasonal retention of soil moisture followed by the drying out of the substrate to promote growth of plants for the following season. These processes enable populations to develop and maintain seed banks, and to provide for successful seedling survival, adult growth, and expansion of populations. The Fickeisen plains cactus must sustain and expand in number if ecological representation of this species is to be ensured. Therefore, based on the information above, we identify natural, generally intact surface and subsurface that preserves the physical processes, such as soil quality and the natural hydrology of a natural vegetation community, to be physical or biological features for this species.

*Primary Constituent Elements for the Fickeisen Plains Cactus*

Based on our current knowledge of the physical or biological features and habitat characteristics required to sustain the species' life-history processes, we determine that the primary constituent elements specific to the Fickeisen plains cactus are:

1. Soils derived from limestone that are found on mesas, plateaus, terraces, the toe of gently sloping hills with up to 20 percent slope, margins of canyon rims, and desert washes. These soils have the following features:
  - a. They occur on the Colorado Plateau in Coconino and Mohave Counties of northern Arizona and are within the appropriate series found in occupied areas;
  - b. They are derived from alluvium, colluvium, or eolian deposits of limestone from the Harrisburg Member of the Kaibab Formation and limestone, siltstone, and sandstone of the Toroweap and Moenkopi Formations;
  - c. They are nonsaline to slightly saline, gravelly, shallow to moderately deep, and well-drained with little signs of soil movement. Soil texture consists of gravelly loam, fine sandy loam, gravelly sandy loam, very gravelly sandy loam, clay loam, and cobbly loam.
2. Native vegetation within the Plains and Great Basin grassland and Great Basin desertscrub vegetation communities from 1,310 to 1,813 m (4,200 to 5,950 ft) in elevation that has a natural, generally intact surface and subsurface that preserves

the bedrock substrate and are supportive of microbiotic soil crusts where they are naturally found.

3. Native vegetation that provides for habitat of identified pollinators within the effective pollinator distance of 1,000 m (3,280 ft) around each individual Fickeisen plains cactus.

#### *Special Management Considerations or Protections*

When designating critical habitat, we assess whether the specific areas within the geographical area occupied by the species at the time of listing contain features which are essential to the conservation of the species and which may require special management considerations or protection. All areas designated as critical habitat as described below may require some level of management to address the current and future threats to the physical or biological features essential to the conservation of the Fickeisen plains cactus. In all of the described units, special management may be required to ensure that the primary constituent elements for the cactus are conserved and the habitat provides for the biological needs of the cactus. Some of the management activities that could ameliorate these threats include, but are not limited to, those discussed below.

- (1) Practice livestock grazing in a manner that maintains, improves, and expands the quantity and quality of desertscrub and grassland habitat. Special management considerations or protection may include the following: manage livestock grazing

sustainably with the natural landscape by determining appropriate areas, seasons, and use consistent within the carrying capacity of rangeland in response to current and future drought and warming trends; improve monitoring and documentation of grazing practices; manage cattle and feral hoofed mammals (ungulates) (e.g., horses, burros) to reduce the risk of plants trampled and soil compaction; and manage for other small mammal species to restore desired processes to increase habitat quality and quantity.

- (2) Manage for nonnative, invasive species, such as *Bromus tectorum* (cheatgrass), *Bromus rubens* (red brome), or *Erodium cicutarium* (redstem filaree), by minimizing conditions that may promote or encourage encroachment or establishment of nonnative, invasive species and restore or reestablish conditions that allow native plants to thrive. Within the range of the Fickeisen plains cactus, the establishment and success of nonnative, invasive species has been a result of historic land use and management practices such as logging, grazing, wildfire suppression actions, mining, and ORV use. Actions have been taken by land management agencies to reduce the spread of invasive species and reduce the risk of wildfire they pose from creating fine fuel loads. Nonnative, invasive species occur near Fickeisen plains cactus habitat and may pose a threat through competition for resources or increase the risk of fire. Special management considerations or protection may include the following: prevent or restrict establishment of nonnative, invasive species; minimize ground-disturbing activities that may facilitate their spread; implement post-disturbance restoration activities such as native plant propagation; practice active removal of



nonnative, invasive plant species and targeted herbicide application (provided herbicides can be shown not to negatively impact the Fickeisen plains cactus or the native pollinators); and improve monitoring and documentation on a site-by-site basis where nonnative, invasive species are present in occupied habitat to assess any effect (beneficial or negative) they pose of the cactus.

- (3) Protect bedrock surfaces and associated limestone soils that provide suitable habitat from mineral development and associated infrastructure (new roads). Numerous breccia pipes (vertical, pipe-shaped bodies of highly fractured rock that collapsed into voids created by dissolution of underlying rock) are located across the Colorado Plateau and are expressed as circular collapse structures, minor folds, and other surface irregularities associated with the Kaibab and Toroweap Formations. Exploration and development of uranium has peaked and waned in accordance with market values. Areas of interest and oil and gas leasing/exploration overlap Fickeisen plains cactus habitat. These activities could result in direct habitat loss or alteration by removing or degrading limestone soils to such an extent that the soils would no longer support the growth of the Fickeisen plains cactus. Special management considerations or protection may include the following: protect lands that support suitable habitat and site future development such that the destruction or removal of limestone from the Kaibab, Toroweap, and Moenkopi formations is minimized and depositional areas are preserved.

- (4) Manage or protect native desertscrub and plains grassland vegetation communities

from recreational impacts. Special management considerations or protections may include the following: managing trails, campsites, and ORVs; and reduce the likelihood of wildfires affecting the population and nearby plant community.

These management activities will protect the physical or biological features essential to the conservation of the Fickeisen plains cactus by reducing the direct and indirect effects of habitat loss, alteration, or fragmentation; preserving the bedrock surfaces and associated limestone soils that form the basis of its habitat; and maintaining the native vegetation communities and its pollinators.

In summary, the primary constituent elements of the Fickeisen plains cactus habitat may be impacted by livestock grazing; nonnative, invasive species; mineral development and associated transportation infrastructure; and recreation. We find that these activities may not be direct threats to the species as a whole, but may negatively impact the primary constituent elements. The areas designated as critical habitat within the geographical area occupied by the taxon at the time of listing contain the physical or biological features essential to the conservation of the Fickeisen plains cactus. Special management considerations or protection may be required to eliminate, or reduce to a negligible level, the threats affecting each unit or subunit and to preserve and maintain the essential features that the critical habitat units and subunits provide to the cactus.

#### *Criteria Used To Identify Critical Habitat*

As required by section 4(b)(2) of the Act, we use the best scientific data available to designate critical habitat. We review available information pertaining to the habitat requirements of the species. In accordance with the Act and its implementing regulation at 50 CFR 424.12(e), we consider whether designating additional areas—outside those currently occupied as well as those occupied at the time of listing—are necessary to ensure the conservation of the species. We have determined that all areas we are designating as critical habitat are within the geographical area occupied by the species at the time of listing (see the “Abundance and Trends” section in the final listing rule (78 FR 60608, October 1, 2013) for more information).

Based on the best available information, we conclude that the six critical habitat units are occupied by the Fickeisen plains cactus. We acknowledge that several of the populations have not been visited for more than 18 years, but we have determined they should be considered occupied at the time of listing. We are making this conclusion because the unvisited populations are within close proximity to other occupied areas within suitable habitat that includes monitored sites; they occur in areas with the same geology, elevation, and vegetation community as nearby known occupied sites; the environmental conditions at these sites have not been severe enough to result in loss of habitat, thereby causing possible extirpation of cactus from these areas or impeded establishment; information is insufficient to suggest that populations no longer are viable (lack of observations does not mean those populations have been extirpated); and the cactus has a lifespan of 10 to 15 years. The best available science indicates that there were once small populations of the cactus at these sites, and there is no evidence known

to indicate otherwise. Please refer to the proposed listing and critical habitat rule (77 FR 60509, October 3, 2012) for more information on our rationale for including them within the final designation of critical habitat.

We considered areas outside the geographical area occupied by the Fickeisen plains cactus at the time of listing, but we are not designating any areas outside the geographical area occupied by the Fickeisen plains cactus. In our review, the Fickeisen plains cactus occurs across a broad range with different topography, large elevational gradients, and vegetation communities (AGFD 2011b, entire). Due to the vastness and diversity of the range, there are areas within its geographical range that provides for in-situ (on-site) conservation if needed in the future. Therefore, we determined that a subset of occupied lands within the species' current range is adequate to ensure the conservation of the Fickeisen plains cactus.

We reviewed available information and supporting data that pertains to the habitat requirements of the Fickeisen plains cactus. This information included research published in peer-reviewed articles, soil surveys, agency reports, special land assessments, and data collected from long-term monitoring plots, interviews with experts, and regional climate data and GIS coverage. Sources of information include, but are not limited to: AGFD 2011b, AZGS 2011, Billingsley *et al.* 2002, Billingsley and Dyer 2003, Billingsley *et al.* 2006, Billingsley *et al.* 2007, Billingsley and Priest 2010, BLM 2007a, Calico 2012, Goodwin 2011a, Hazelton 2012a, Milne 1987, NNHP 2011a, NRCS 2012, Phillips *et al.* 1982, Travis 1987, and Western Regional Climate Center 2012. Based on

this information, we developed a strategy for determining which areas meet the definition of critical habitat for the Fickeisen plains cactus.

In identifying critical habitat units for the Fickeisen plains cactus, we proceeded through a multi-step process. We obtained all records for the distribution of the Fickeisen plains cactus from AGFD, as well as both published and unpublished documentation from our files. Recent survey results confirm that current plant distribution is similar to documented distribution records with the exception that additional populations have been found following survey efforts.

Our approach to delineating critical habitat units was applied in the following manner:

(1) We overlaid locations of the Fickeisen plains cactus into a GIS database. This provided us with the ability to examine slope, elevation, geologic type, vegetation community, and topographic features. These data points verified and slightly expanded the previously recorded elevation ranges for the Fickeisen plains cactus.

(2) In addition to the GIS layers listed above, we then included a 1,000-m (3,280-ft) pollination area around known individual Fickeisen plains cacti to encompass native vegetation surrounding individual Fickeisen plains cacti, as described in *Primary Constituent Elements for the Fickeisen Plains Cactus*, above.

(3) We then drew critical habitat boundaries that captured the locations elucidated under (1) and (2) above. Critical habitat designations were then mapped using Albers Equal Area (Albers) North American Datum 83 (NAD 83) coordinates.

#### Occupied Area at the Time of Listing

Areas where plants are or have been documented within the species' described range were considered to be occupied at the time of listing. The known range of the Fickeisen plains cactus is in Arizona from Mainstreet Valley and Hurricane Valley in Mohave County to House Rock Valley in Coconino County on the Arizona Strip; along the canyon rims of the Colorado River and Little Colorado River to the area of Gray Mountain; and along the rims of Cataract Canyon on the Coconino Plateau.

Occupied occurrences or clusters of the Fickeisen plains cactus that were located in proximity to one another, but distributed within a large area, were grouped into one unit (e.g., Hurricane Cliffs and House Rock Valley). Areas where individual plants are distributed over a large distance (e.g., Cataract Ranch) were also categorized into one unit. All of the units contained all of the identified elements of physical or biological features and support multiple life-history processes.

The critical habitat designation is defined by the map or maps, as modified by any accompanying regulatory text, presented at the end of this document in the rule portion. We include more detailed information on the boundaries of the critical habitat

designation in the preamble of this document. We will make the coordinates or plot points or both on which each map is based available to the public on <http://www.regulations.gov> at Docket No. FWS–R2–ES–2013–0025, on our Internet sites <http://www.fws.gov/southwest/es/arizona/>, and at the field office responsible for the designation (see **FOR FURTHER INFORMATION CONTACT** above).

*Critical Habitat Designation for the Fickeisen Plains Cactus*

We are designating six units as critical habitat for the Fickeisen plains cactus. The critical habitat areas we describe below constitute our current best assessment of areas that meet the definition of critical habitat for the Fickeisen plains cactus. The six units we are designating as critical habitat are: (1) Hurricane Cliffs; (2) Sunshine Ridge; (3) Clayhole Valley; (4) South Canyon; (5) House Rock Valley; and (6) Gray Mountain. All of the six critical habitat units were occupied by the Fickeisen plains cactus at the time of listing. The approximate area of each critical habitat unit is shown in Table 3.

**TABLE 3.—Designated critical habitat units for the Fickeisen plains cactus.**

Critical Habitat Unit	Federal		State		Private		Total	
	Ha	Ac	Ha	Ac	Ha	Ac	Ha	Ac
1. Hurricane Cliffs								
1a. Dutchman Draw	1,525	3,769	0	0	2	5	1,527	3,774
1b. Salaratus Draw	445	1,098	266	658	13	33	724	1,789
1c. Temple Trail	443	1,096	0	0	0	0	443	1,096
1d. Toquer Tank	350	865	0	0	0	0	350	865

2. Sunshine Ridge	612	1,512	142	351	0	0	754	1,863
3. Clayhole Valley	338	836	76	188	0	0	414	1,024
4. South Canyon	110	272	0	0	0	0	110	272
5. House Rock Valley								
5a. Beanhole Well	745	1,841	126	312	0	0	871	2,153
5b. North Canyon Wash	472	1,166	0	0	0	0	472	1,166
5c. Marble Canyon	214	528	0	0	0	0	214	528
5d. South Canyon	336	831	0	0	0	0	336	831
6. Gray Mountain								
6a. Mays Wash	246	609	80	198	0	0	326	807
6b. Gray Mountain	0	0	7	17	514	1,271	521	1,288
Total	5,836	14,423	697	1,724	529	1,309	7,062	17,456

Note: Area sizes may not sum due to rounding.

We present brief descriptions of all units, and reasons why they meet the definition of critical habitat for the Fickeisen plains cactus, below.

#### Unit 1: Hurricane Cliffs

The Hurricane Cliffs Unit is located on the Arizona Strip in the north-central area of Mohave County, Arizona. The unit lies predominantly on the Shivwits Plateau and is bounded to the west by Mainstreet Valley and to the east by the Hurricane Cliffs. The unit consists of four subunits totaling 3,044 ha (7,524 ac) and includes small areas of private land, lands owned by the State of Arizona, and federally owned land managed by the BLM. The entire unit occurs within the area referred as the Arizona Strip that is managed by the BLM for multiple land use purposes such as livestock grazing, fuels



management, energy, and recreation. The BLM manages grazing leases for large allotments comprised of a mix of their lands as well as State lands. Occupancy of the Hurricane Cliffs Unit by the Fickeisen plains cactus has been documented since 1986 (BLM 1986, p. 1). The taxon was considered generally rare, but in abundant numbers at Dutchman Draw with a few scattered individuals located in small clusters adjacent to Dutchman Draw populations. These smaller clusters include the Navajo, Ward, Salaratus Draw I, Salaratus Draw II, Temple Trail, and Toquer Tank populations. This entire unit helps to maintain the geographical range of the species and provide opportunity for population growth. This unit also provides a core population of the species.

*Subunit 1a: Dutchman Draw*—Subunit 1a consists of 1,527 ha (3,774 ac) of land near Dutchman Draw in Mainstreet Valley. The subunit occurs within the Shivwits Plateau and along an exposed fault. Lands within this subunit were occupied at the time of listing. A monitoring plot was established at this site in 1986. The BLM has visited the plot regularly since then. Monitoring information has shown fluctuations in plant numbers between years, but among all years, there is an overall decline in plant numbers from a peak of 219 individuals in 1992 to 5 individuals in 2012. This subunit also includes the Navajo and Ward cluster plots that were established to note presence or absence of the cactus. These small plots were last visited in 2001, and 10 plants were found at each of the plots.

This subunit contains all of the primary constituent elements of the physical or biological features essential to the conservation of the Fickeisen plains cactus. Occupied

habitat areas in this subunit occur predominantly within the Plains and Great Basin grassland with a small portion in the Great Basin desertscrub vegetation communities. Plants occur amongst tall, dense clumps of grama grass with some desert shrubs. The subunit is located at the foot of a gently sloping hill in fine alluvium deposits. Most of the bedrock surface is limestone, siltstone, and gypsum of the Kaibab Formation.

*Subunit 1b: Salaratus Draw*—Subunit 1b consists of 724 ha (1,789 ac) of land near Salaratus Draw. The subunit overlies an active fault on the Shivwits Plateau. Lands within this subunit were occupied at the time of listing and include Salaratus Draw I and Salaratus Draw II populations. This site was visited only three times between 1986 and 2001. At most, 44 plants were located in this subunit when last visited in 1994. This subunit contains all of the primary constituent elements of the physical or biological features essential to the conservation of the Fickeisen plains cactus.

*Subunit 1c: Temple Trail*—Subunit 1c consists of 443 ha (1,096 ac) of land in Lower Hurricane Valley. This subunit lies on the Hurricane Cliffs. It is bounded by the Shivwits Plateau to the west and the Uinkaret Plateau to the east, separated by an active fault that runs north along the Hurricane Cliffs. Lands within this subunit were occupied at the time of listing. This site was last visited in 2001 when seven individuals were found. This subunit contains all of the primary constituent elements of the physical or biological features essential to the conservation of the Fickeisen plains cactus.

*Subunit 1d: Toquer Tank*—Subunit 1d consists of 350 ha (865 ac) of land in

Lower Hurricane Valley. Lands within this subunit were occupied at the time of listing. This site was regularly monitored from 1986 to 1991, when abundance counts ranged from 7 to 13 plants. This site was last visited in 1994, and seven individuals were found. This subunit contains all of the primary constituent elements of the physical or biological features essential to the conservation of the Fickeisen plains cactus.

The features essential to the conservation of the species within this unit are threatened by livestock grazing; nonnative, invasive species issues; small mammal predation on the cactus; and long-term drought coupled with increased minimum winter temperatures. Special management considerations or protection may be required to minimize habitat disturbance to Fickeisen plains cactus individuals, soil, and associated native vegetation; and to prevent or remove nonnative, invasive species within its habitat.

## Unit 2: Sunshine Ridge

The Sunshine Ridge Unit is located on the Arizona Strip and lies on the Kanab Plateau in Mohave County, Arizona. The unit totals 754 ha (1,863 ac). This unit contains land that is federally and State owned. The entire unit is managed primarily by the BLM for multiple land use purposes such as livestock grazing, fuels management, energy, and recreation. Plants are located east of the Uinkaret Plateau and east of the range of the *Pediocactus sileri* (Siler pincushion cactus). Occupancy of the Sunshine Ridge Unit by the Fickeisen plains cactus has been documented since 1977 (AGFD 2011b, entire). This population has been regularly monitored since 1986, and has 34

plants as of 2011. Land within this unit was occupied at the time of listing and contains all of the primary constituent elements of the physical or biological features essential to the conservation of the Fickeisen plains cactus. This unit helps to maintain the geographical range of the species and provide opportunity for population growth. This unit also provides a core population of the species.

The features essential to the conservation of the species within this unit are threatened by livestock grazing; nonnative, invasive species issues; small mammal predation on the cactus; and long-term drought coupled with increased minimum winter temperatures. Special management considerations or protection may be required to minimize habitat disturbance to Fickeisen plains cactus individuals, soil, and associated native vegetation; and to prevent or remove nonnative, invasive species within its habitat.

### Unit 3: Clayhole Valley

The Clayhole Valley Unit is located in Upper Clayhole Valley on the Arizona Strip and lies within the Uinkaret Plateau in Mohave County, Arizona. The unit consists of 414 ha (1,024 ac) of land that is federally and State owned. The entire unit is managed primarily by the BLM for multiple land use purposes including livestock grazing. Occupancy of the Clayhole Valley Unit by the Fickeisen plains cactus has been documented since 1980 (AGFD 2011b, entire). The population has been monitored annually since 1986. As of 2011, the population contains 42 plants. Land within this unit was occupied at the time of listing and contains all of the primary constituent

elements of the physical or biological features essential to the conservation of the Fickeisen plains cactus. This unit helps to maintain the geographical range of the species and provide opportunity for population growth. This unit also provides a core population of the species.

The features essential to the conservation of the species within this unit are threatened by livestock grazing; nonnative, invasive species issues; small mammal predation on the cactus; and long-term drought coupled with increased minimum winter temperatures. Special management considerations or protection may be required to minimize habitat disturbance to Fickeisen plains cactus individuals, soil, and associated native vegetation; and to prevent or remove nonnative, invasive species within its habitat.

#### Unit 4: South Canyon

The South Canyon is located on the eastern boundary of the North Kaibab Ranger District of the Kaibab National Forest in Coconino County, Arizona. It is bounded by the Colorado River near Marble Canyon at House Rock Valley. It includes land originally designated as the Grand Canyon National Game Preserve that is now referred to as the Buffalo Ranch Management Area. It contains 110 ha (272 ac) of federally owned land that is administered by the Kaibab National Forest. This unit contains at least 62 individual Fickeisen plains cactus scattered among 6 areas along the rim of South Canyon Point. This unit contains all of the primary constituent elements of the physical or biological features essential to the conservation of the Fickeisen plains cactus. This unit

helps to maintain the geographical range of the species and provide opportunity for population growth. This unit also provides a core population of the species.

The primary land uses within this unit include big game hunting and recreational activities throughout the year. The area is very remote and may receive limited numbers of hikers, hunters, or campers. Under a memorandum of understanding, the Kaibab National Forest and the AGFD commit to managing the natural resources of this area, mainly big game species, to ensure that sensitive resources are not impacted and desired conditions are achieved (USFS 2012, p. 92). Livestock grazing by cattle and mining activities are not authorized within the Buffalo Ranch Management Area. Special management considerations or protection may be required within the unit to minimize habitat disturbance to the soil and associated native vegetation, and prevent invasion of nonnative plants.

The features essential to the conservation of the species within this unit are threatened by nonnative, invasive species issues and long-term drought coupled with increased minimum winter temperatures. Special management considerations or protection may be required to minimize conditions that may promote or encourage encroachment and establishment of nonnative, invasive species; and reduce the likelihood of wildfires affecting the population and nearby plant community.

Unit 5: House Rock Valley

The House Rock Valley is located on the eastern edge of the Arizona Strip near the North Rim of the Grand Canyon National Park in Coconino County, Arizona. The unit consists of four subunits totaling 1,893 ha (4,678 ac) of land. The unit consists of land that is federally and State owned. The entire unit is managed primarily by the BLM, mainly for livestock grazing. Lands within this unit were occupied at the time of listing and contain all of the primary constituent elements of the physical or biological features essential to the conservation of the Fickeisen plains cactus. This entire unit helps to maintain the geographical range of the species and provide opportunity for population growth. This unit also provides a core population of the species.

Occupancy of the Fickeisen plains cactus in the House Rock Valley Unit was first documented in 1979 (Phillips 1979, entire; AGFD 2011b, entire), at Beanhole Well, Marble Canyon, and South Canyon. These sites have not been visited for more than 21 years. However, we have no reason to believe these sites were not occupied at the time of listing for reasons provided in the “Distribution and Range” section of the final listing rule (78 FR 60608). Occupancy at the North Canyon Wash site was documented in 1986, and it has been regularly monitored since. The House Rock Valley Unit is bounded by the Colorado River to the east, U.S. Highway 89A to the north, and the Kaibab National Forest to the west.

*Subunit 5a: Beanhole Well*—Subunit 5a consists of 745 ha (1,841 ac) of federally owned land that is managed by the BLM, and 126 ha (312 ac) of State-owned land. Lands within this subunit were occupied at the time of listing. Three plants were

documented at Beanhole Well in 1979, and the site has been visited by Hughes since then, and while occupied habitat was observed, no plant numbers were reported to us (Calico 2012, pers. comm.). This subunit contains all of the primary constituent elements of the physical or biological features essential to the conservation of the Fickeisen plains cactus.

*Subunit 5b: North Canyon Wash*—Subunit 5b consists of 472 ha (1,166 ac) of federally owned land that is managed by the BLM. Lands within this subunit were occupied at the time of listing. This site has been regularly monitored since 1986. As of 2011, the site contains 39 Fickeisen plains cacti. This subunit contains all of the primary constituent elements of the physical or biological features essential to the conservation of the Fickeisen plains cactus.

*Subunit 5c: Marble Canyon*—Subunit 5c consists of 214 ha (528 ac) of federally owned land that is managed by the BLM. Lands within this subunit were occupied at the time of listing. Eight plants were documented at Marble Canyon in 1979. This site has not been visited for many years. This subunit contains all of the primary constituent elements of the physical or biological features essential to the conservation of the Fickeisen plains cactus.

*Subunit 5d: South Canyon*—Subunit 5d consists of 336 ha (831 ac) of Federal land in House Rock Valley along the rim of Marble Canyon. Lands within this subunit were occupied at the time of listing. A total of 52 plants have been documented at this



site historically. This subunit contains all of the primary constituent elements of the physical or biological features essential to the conservation of the Fickeisen plains cactus.

The features essential to the conservation of the species within this unit are threatened by livestock grazing; nonnative, invasive species issues; small mammal predation on the cactus; and long-term drought coupled with increased minimum winter temperatures. Special management considerations or protection may be required to minimize habitat disturbance to Fickeisen plains cactus individuals, soil, and associated native vegetation; and to prevent or remove nonnative, invasive species within its habitat.

#### Unit 6: Gray Mountain

The Gray Mountain Unit is located in the vicinity of the town of Gray Mountain, Arizona, on Highway 89 in Coconino County. The unit consists of two subunits totaling 847 ha (2,095 ac). The unit includes a checkerboard mix of private land, lands owned by the State, and federally owned land managed by the BLM. Lands within this unit are considered occupied at the time of listing. Occupancy at the Gray Mountain unit was first documented in 1962, and consists of two very small populations on both sides of Highway 89. Occupied sites were visited in 2013, and a few plants in flower were observed. This unit contains all of the primary constituent elements of the physical or biological features essential to the conservation of the Fickeisen plains cactus. This entire unit helps to maintain the geographical range of the species and provide opportunity for population growth. This unit also provides a core population of the

species.

*Subunit 6a: Mays Wash*—Subunit 6a is located southeast of Highway 89 and consists of 326 ha (807 ac) of land. The subunit includes private land, land owned by the State, and federally owned land managed by the BLM. The entire subunit lies within a cattle ranch and is managed privately for livestock grazing. Lands in this subunit are considered occupied at the time of listing. Occupancy at this site was documented in 1981 and 1984, when 31 plants were found (AGFD 2011b, entire). A site visit to BLM land in 2013 located a few plants in flower. This subunit contains all of the primary constituent elements of the physical or biological features essential to the conservation of the Fickeisen plains cactus.

*Subunit 6b: Gray Mountain*—Subunit 6b is located west of Highway 89 and borders the boundary of the Navajo Nation. This subunit consists of 521 ha (1,288 ac) of land that is owned by the State and privately owned land. The entire subunit lies within a cattle ranch and is managed privately for livestock grazing. Lands in this subunit are considered occupied at the time of listing. Occupancy was documented in 2009 when three individuals were found (NNHP 2011a, p. 2). An individual in bloom was observed in 2013. This subunit contains all of the primary constituent elements of the physical or biological features essential to the conservation of the Fickeisen plains cactus.

The features essential to the conservation of the species within this unit are threatened by livestock grazing by horses and sheep; nonnative, invasive species issues;

mineral development and associated infrastructure; and long-term drought coupled with increased minimum winter temperatures. Special management considerations or protection may be required to minimize disturbance or destruction to the bedrock substrate and associated limestone soils; to prevent or remove nonnative, invasive species within its habitat; and protect the native vegetation communities.

### **Effects of Critical Habitat Designation for Acuña Cactus and Fickeisen Plains Cactus**

#### **Section 7 Consultation**

Section 7(a)(2) of the Act requires Federal agencies, including the Service, to ensure that any action they fund, authorize, or carry out is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of designated critical habitat of such species. In addition, section 7(a)(4) of the Act requires Federal agencies to confer with the Service on any agency action which is likely to jeopardize the continued existence of any species proposed to be listed under the Act or result in the destruction or adverse modification of proposed critical habitat.

We published a final regulation with a new definition of destruction or adverse modification on February 11, 2016 (81 FR 7214) which becomes effective on March 14,

2016. Destruction or adverse modification means a direct or indirect alteration that appreciably diminishes the value of critical habitat for the conservation of a listed species. Such alterations may include, but are not limited to, those that alter the physical or biological features essential to the conservation of a species or that preclude or significantly delay development of such features.

If a Federal action may affect a listed species or its critical habitat, the responsible Federal agency (action agency) must enter into consultation with us. Examples of actions that are subject to the section 7 consultation process are actions on State, tribal, local, or private lands that require a Federal permit (such as a permit from the U.S. Army Corps of Engineers under section 404 of the Clean Water Act (33 U.S.C. 1251 *et seq.*) or a permit from the Service under section 10 of the Act) or that involve some other Federal action (such as funding from the Federal Highway Administration, Federal Aviation Administration, or the Federal Emergency Management Agency). Federal actions not affecting listed species or critical habitat, and actions on State, tribal, local, or private lands that are not federally funded or authorized, do not require section 7 consultation.

As a result of section 7 consultation, we document compliance with the requirements of section 7(a)(2) through our issuance of:

- (1) A concurrence letter for Federal actions that may affect, but are not likely to adversely affect, listed species or critical habitat; or
- (2) A biological opinion for Federal actions that may affect and are likely to adversely affect, listed species or critical habitat.

When we issue a biological opinion concluding that a project is likely to jeopardize the continued existence of a listed species and/or destroy or adversely modify critical habitat, we provide reasonable and prudent alternatives to the project, if any are identifiable, that would avoid the likelihood of jeopardy and/or destruction or adverse modification of critical habitat. We define “reasonable and prudent alternatives” (at 50 CFR 402.02) as alternative actions identified during consultation that:

- (1) Can be implemented in a manner consistent with the intended purpose of the action,
- (2) Can be implemented consistent with the scope of the Federal agency’s legal authority and jurisdiction,
- (3) Are economically and technologically feasible, and
- (4) Would, in the Director’s opinion, avoid the likelihood of jeopardizing the continued existence of the listed species and/or avoid the likelihood of destroying or adversely modifying critical habitat.

Reasonable and prudent alternatives can vary from slight project modifications to extensive redesign or relocation of the project. Costs associated with implementing a reasonable and prudent alternative are similarly variable.

Regulations at 50 CFR 402.16 require Federal agencies to reinitiate consultation on previously reviewed actions in instances where we have listed a new species or

subsequently designated critical habitat that may be affected and the Federal agency has retained discretionary involvement or control over the action (or the agency's discretionary involvement or control is authorized by law). Consequently, Federal agencies sometimes may need to request reinitiation of consultation with us on actions for which formal consultation has been completed, if those actions with discretionary involvement or control may affect subsequently listed species or designated critical habitat.

### **Application of the “Adverse Modification” Standard**

The key factor related to the adverse modification determination is whether, with implementation of the proposed Federal action, the affected critical habitat would continue to serve its intended conservation role for the species. Activities that may destroy or adversely modify critical habitat are those that result in a direct or indirect alteration that appreciably diminishes the value of critical habitat for the conservation of the the acuña cactus or the Fickeisen plains cactus. Such alterations may include, but are not limited to, those that alter the physical or biological features essential to the conservation of these species or that preclude or significantly delay development of such features. As discussed above, the role of critical habitat is to support physical or biological features essential to the conservation of a listed species and provide for the conservation of the species

Section 4(b)(8) of the Act requires us to briefly evaluate and describe, in any

proposed or final regulation that designates critical habitat, activities involving a Federal action that may destroy or adversely modify such habitat, or that may be affected by such designation.

Activities that may affect critical habitat, when carried out, funded, or authorized by a Federal agency, should result in consultation for the acuña cactus or the Fickeisen plains cactus. These activities include, but are not limited to, actions that would adversely affect the composition and structure of soil within the designated critical habitat for the acuña cactus or Fickeisen plains cactus through land disturbances that result in soil compaction or erosion, removal or degradation of native vegetation, or fragmentation of the acuña cactus or Fickeisen plains cactus populations or their pollinators.

Such activities within the designated critical habitat for the acuña cactus could include, but are not limited to:

- (1) Actions within or near designated critical habitat areas that would result in the loss, disturbance, or compaction of soils. Such activities could include, but are not limited to: livestock grazing; U.S.–Mexican border activities; recreational or other ORV use; mining operations; fire management, including clearing of vegetation for fuel management; and road construction.
- (2) Activities that would result in changes in the vegetation composition, such as a reduction in nurse plants or an introduction or proliferation of invasive, nonnative

- plant cover that may lead to unnatural fires or competition for nutrients, water, or space, resulting in decreased density or vigor of individual acuña cactus.
- (3) Actions within or near designated critical habitat that would significantly reduce pollination or seed set (reproduction). Such activities could include, but are not limited to: use of pesticides; herbicides; mowing; fuels management projects such as prescribed burning; and post-wildfire rehabilitation activities using plant species that may compete with the acuña cactus.
- (4) Actions within or near designated critical habitat areas that would result in the significant alteration of intact, native, Sonoran desertscrub vegetation communities within the range of the acuña cactus. Such activities could include: ORV activities and dispersed recreation; U.S.–Mexico border activities; new road construction or widening or existing road maintenance; new energy transmission lines or expansion of existing energy transmission lines; new border infrastructure; maintenance of any existing energy transmission line corridors or border infrastructure; fuels management projects such as prescribed burning; and rehabilitation or restoration activities using plant species that may compete with the acuña cactus.

These activities could result in the replacement or fragmentation of Sonoran desertscrub vegetation communities through the degradation or loss of native shrubs, grasses, and forbs in a manner that promotes increased wildfire frequency and intensity, and an increase in the cover of invasive, nonnative plant species that would compete for soil matrix components and moisture necessary to support the growth and reproduction of the acuña cactus.



For the Fickeisen plains cactus these activities could include, but are not limited to:

- (1) Actions within or near designated critical habitat areas that would result in the loss, degradation, or compaction of soils along canyon rims, mesa tops or ridge tops, terraces, or other areas of suitable habitat (e.g., near the base of gently sloping hills). Such activities could include, but are not limited to: livestock grazing; recreational or other ORV use; fire management, including clearing of vegetation for fuel management; and road construction.
- (2) Actions that would result in the loss of limestone substrate or limestone-derived soils. Such activities could include, but are not limited to mineral development; development for infrastructure (roads); or changes in land-use practices such as conversion of native grasslands or desertscrub communities to residential or commercial development.
- (3) Activities that would result in changes in soil composition leading to changes in the vegetation composition, such as an introduction or proliferation of invasive, nonnative plant cover that may lead to competition for nutrients, water, or space, resulting in decreased density or vigor of individual Fickeisen plains cactus.
- (4) Actions within or near designated critical habitat that would significantly reduce pollination or seed set (reproduction). Such activities could include, but are not limited to: use of pesticides; herbicides; mowing; fuels management projects such as prescribed burning; and post-wildfire rehabilitation activities using plant species that

may compete with the Fickeisen plains cactus.

- (5) Actions within or near designated critical habitat areas that would result in the significant alteration of intact, native, desertscrub and grassland habitat within the range of the Fickeisen plains cactus. Such activities could include: ORV activities and dispersed recreation; new road construction or widening or existing road maintenance; new energy transmission lines or expansion of existing energy transmission lines; maintenance of any existing energy transmission line corridors; fuels management projects such as prescribed burning; and rehabilitation or restoration activities using plant species that may compete with the Fickeisen plains cactus.

These activities could result in the replacement or fragmentation of desertscrub and grassland habitat through the degradation or loss of native shrubs, grasses, and forbs in a manner that promotes increased wildfire frequency and intensity, and an increase in the cover of invasive, nonnative plant species that would compete for soil matrix components and moisture necessary to support the growth and reproduction of the Fickeisen plains cactus.

## **Exemptions**

### *Application of Section 4(a)(3) of the Act*

The Sikes Act Improvement Act of 1997 (Sikes Act) (16 U.S.C. 670a) required

each military installation that includes land and water suitable for the conservation and management of natural resources to complete an Integrated Natural Resources Management Plan (INRMP) by November 17, 2001. An INRMP integrates implementation of the military mission of the installation with stewardship of the natural resources found on the base. Each INRMP includes:

- (1) An assessment of the ecological needs on the installation, including the need to provide for the conservation of listed species;
- (2) A statement of goals and priorities;
- (3) A detailed description of management actions to be implemented to provide for these ecological needs; and
- (4) A monitoring and adaptive management plan.

Among other things, each INRMP must, to the extent appropriate and applicable, provide for fish and wildlife management; fish and wildlife habitat enhancement or modification; wetland protection, enhancement, and restoration where necessary to support fish and wildlife; and enforcement of applicable natural resource laws.

The National Defense Authorization Act for Fiscal Year 2004 (Pub. L. 108-136) amended the Act to limit areas eligible for designation as critical habitat. Specifically, section 4(a)(3)(B)(i) of the Act (16 U.S.C. 1533(a)(3)(B)(i)) now provides: “The Secretary shall not designate as critical habitat any lands or other geographical areas owned or controlled by the Department of Defense, or designated for its use, that are subject to an integrated natural resources management plan prepared under section 101 of

the Sikes Act (16 U.S.C. 670a), if the Secretary determines in writing that such plan provides a benefit to the species for which critical habitat is proposed for designation.”

We consult with the military on the development and implementation of INRMPs for installations with listed species. We analyzed INRMPs developed by military installations located within the range of the critical habitat designation for the acuña cactus to determine if they meet the criteria for exemption from critical habitat under section 4(a)(3) of the Act. The following areas are Department of Defense lands with completed, Service-approved INRMPs within the proposed revised critical habitat designation.

#### Approved INRMP for the Acuña Cactus

##### Barry M. Goldwater Gunnery Range—Arizona

The BMGR has an approved INRMP and is committed to working closely with the Service to continually refine the existing INRMP as part of the Sikes Act’s INRMP review process. Based on our review of the INRMP for this military installation, and in accordance with section 4(a)(3)(B)(i) of the Act, we have determined that the portion of the acuña cactus habitat within this installation, identified as meeting the definition of critical habitat, is subject to the INRMP, and that conservation efforts identified in this INRMP will provide a benefit to the acuña cactus. Therefore, lands within this installation are exempt from critical habitat designation under section 4(a)(3)(B)(i) of the

Act. We are not including 378 ha (935 ac) of habitat on BMGR in the critical habitat designation because of this exemption.

The BMGR completed a revision to the INRMP in relation to ongoing and planned conservation efforts for the acuña cactus and provided this revision to us during the public comment period. The benefits for acuña cactus from this revised INRMP include: avoiding disturbance of vegetation and pollinators within 900 m (2,953 ft) of known acuña cactus plants; developing and implementing procedures to control trespass livestock; monitoring illegal immigration, contraband trafficking, and border-related enforcement; and continuing to monitor and control invasive plant species to maintain quality habitat and prevent unnatural fire. Further, BMGR's environmental staff reviews projects and enforces existing regulations and orders that, through their implementation, projects avoid and minimize impacts to natural resources, including acuña cacti and their habitat. In addition, BMGR's INRMP provides protection to acuña cactus habitat by prohibiting both mining and agriculture on their lands. The BMGR INRMP specifies periodic monitoring of the distribution and abundance of acuña cacti populations on the range.

Based on the above considerations, and in accordance with section 4(a)(3)(B)(i) of the Act, we have determined that conservation efforts for the acuña cactus identified in the BMGR's INRMP provide a benefit to the acuña cactus and its habitat. Therefore, lands subject to the INRMP for BMGR, which includes the lands leased from the Department of Defense by other parties, are exempt from critical habitat designation

under section 4(a)(3) of the Act, and we are not including approximately 378 ha (935 ac) of habitat in this critical habitat designation.

### **Consideration of Impacts under section 4(b)(2) of the Act**

Section 4(b)(2) of the Act states that the Secretary shall designate and make revisions to critical habitat on the basis of the best available scientific data after taking into consideration the economic impact, national security impact, and any other relevant impact of specifying any particular area as critical habitat. The Secretary may exclude an area from critical habitat if she determines that the benefits of such exclusion outweigh the benefits of specifying such area as part of the critical habitat, unless she determines, based on the best scientific data available, that the failure to designate such area as critical habitat will result in the extinction of the species. In making that determination, the statute on its face, as well as the legislative history are clear that the Secretary has broad discretion regarding which factor(s) to use and how much weight to give to any factor.

When identifying the benefits of inclusion for an area, we consider the additional regulatory benefits that area would receive due to the protection from destruction of adverse modification as a result of actions with a Federal nexus; the educational benefits of mapping essential habitat for recovery of the listed species; and any benefits that may result from a designation due to State or Federal laws that may apply to critical habitat.

When identifying the benefits of exclusion, we consider, among other things,

whether exclusion of a specific area is likely to result in conservation; the continuation, strengthening, or encouragement of partnerships; or implementation of a management plan that provides equal to or more conservation than a critical habitat designation would provide.

In the case of both cactus species, the benefits of critical habitat include public awareness of the two cactus species' presence and the importance of habitat protection. Where a Federal nexus exists, the designations of critical habitat may also increase habitat protection for the two cactus species due to the protection from adverse modification or destruction of critical habitat.

In practice, a Federal nexus exists primarily on Federal lands or for projects undertaken by Federal agencies or permits issued by Federal agencies. Because the Service finalized the listing rules for these species on October 1, 2013, we have not been regularly consulting with Federal agencies on their effects to the cacti for projects on Federal lands, or for projects on privately owned lands that had a Federal nexus to trigger consultation under section 7 of the Act. We found one project that considered effects to the acuña cactus and eight projects that considered effects to the Fickeisen plains cactus over the past 20 years. In these cases, the Federal action agency requested our technical assistance in developing conservation recommendations aimed at minimizing or reducing effects to the species in order to preclude the need for listing and in furtherance of their authorities under section 7(a)(1) of the Act.

When we evaluate the existence of a conservation plan when considering the benefits of exclusion, we consider a variety of factors, including but not limited to, whether the plan is finalized; how it provides for the conservation of the essential physical or biological features; whether there is a reasonable expectation that the conservation management strategies and actions contained in a management plan will be implemented into the future; whether the conservation strategies in the plan are likely to be effective; and whether the plan contains a monitoring program or adaptive management to ensure that the conservation measures are effective and can be adapted in the future in response to new information.

After identifying the benefits of inclusion and the benefits of exclusion, we carefully weigh the two sides to evaluate whether the benefits of exclusion outweigh those of inclusion. If our analysis indicates that the benefits of exclusion outweigh the benefits of inclusion, we then determine whether exclusion would result in extinction of the species. If exclusion of an area from critical habitat will result in extinction, we will not exclude it from the designation.

Based on the information provided by entities seeking exclusion, as well as any additional public comments received, we considered whether certain lands in the proposed acuña cactus critical habitat Unit 3 and proposed Fickeisen plains cactus critical habitat Units 6, 7, 8, and 9 were appropriate for exclusion from this final designation pursuant to section 4(b)(2) of the Act. In particular, we considered whether the following were appropriate for exclusion: 156 ha (385 ac) of Tohono O’odham Nation land in Unit



3 of acuña cactus proposed critical habitat; 3,865 ha (9,554 ac) of Navajo Nation land in proposed Fickeisen plains cactus critical habitat Units 6, 7, and 8 (Subunit 8b); and 8,139 ha (20,113 ac) of Babbitt Ranch, LLC, lands in proposed Fickeisen plains cactus critical habitat Units 8 (Subunit 8a) and Unit 9, respectively, of the Fickeisen plains cactus proposed critical habitat. Table 4 below provides approximate areas (ac, ha) of lands that meet the definition of critical habitat but are being excluded under section 4(b)(2) of the Act from the final critical habitat rule. In the sections that follow, we present our discretionary exclusion analysis under section 4(b)(2) of the Act for those areas listed in Table 4.

**TABLE 4.—Areas excluded from critical habitat designation by critical habitat unit.**

<i>Acuña Cactus</i>			
Proposed Critical Habitat Unit	Specific Area	Areas Meeting the Definition of Critical Habitat, in Hectares (Acres)	Areas Excluded from Critical Habitat, in Hectares (Acres)
3—Sauceda Mountains Unit	Sauceda Mountains	1,637 (4,044)	156 (385)
<i>Fickeisen Plains Cactus</i>			
Proposed Critical Habitat Unit	Specific Area	Areas Proposed as Critical Habitat, in Hectares (Acres)	Areas Excluded from Critical Habitat, in Hectares (Acres)
6—Tiger Wash Unit	Tiger Wash 1 Subunit	380 (940)	380 (940)
	Tiger Wash 2 Subunit	1,497 (3,700)	1,497 (3,700)
	Shinumo Wash Subunit	380 (940)	380 (940)
7—Little Colorado River Overlook Unit	Little Colorado River Overlook	1,170 (2,891)	1,170 (2,891)
8—Gray Mountain Unit	Mays Wash Subunit	697 (1,724)	371 (917)
	Gray Mountain Subunit	960 (2,371)	438 (1,083)

9—Cataract Canyon Unit	Cataract Canyon	7, 768 (19,196)	7,768 (19,196)
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### **Consideration of Economic Impacts**

Under section 4(b)(2) of the Act, we consider the economic impacts of specifying any particular area as critical habitat. In order to consider economic impacts, we prepared a DEA of the proposed critical habitat designation (which included areas we were considering for exclusion) and related factors (Industrial Economics 2012, entire). The draft analysis, dated February 22, 2013, was made available for public review from March 28, 2013, through April 29, 2013 (78 FR 18938). Following the close of the comment period, a final economic analysis (FEA, dated August 23, 2013) of the potential economic effects of the designation was developed taking into consideration the public comments and any new information (IEc 2013, entire).

The intent of the FEA is to quantify the economic impacts of all potential conservation efforts for the acuña cactus and the Fickeisen plains cactus; some of these costs will likely be incurred regardless of whether we designate critical habitat (baseline). The economic impact of the final critical habitat designation is analyzed by comparing scenarios both “with critical habitat” and “without critical habitat.” The “without critical habitat” scenario represents the baseline for the analysis, considering protections already in place for the species (e.g., under the Federal listing and other Federal, State, and local regulations). The baseline, therefore, represents the costs incurred regardless of whether critical habitat is designated. The “with critical habitat” scenario describes the

incremental impacts associated specifically with the designation of critical habitat for the species. The incremental conservation efforts and associated impacts are those not expected to occur absent the designation of critical habitat for the species. In other words, the incremental costs are those attributable solely to the designation of critical habitat above and beyond the baseline costs; these are the costs we consider in the final designation of critical habitat. The analysis looks retrospectively at baseline impacts incurred since the species was listed, and forecasts both baseline and incremental impacts likely to occur with the designation of critical habitat. For a further description of the methodology of the analysis, see Chapter 2, “Framework for the Analysis,” of the FEA.

The FEA also addresses how potential economic impacts are likely to be distributed, including an assessment of any local or regional impacts of habitat conservation and the potential effects of conservation activities on government agencies, private businesses, and individuals. The FEA measures lost economic efficiency associated with residential and commercial development and public projects and activities, such as economic impacts on water management and transportation projects, Federal lands, small entities, and the energy industry. Decision-makers can use this information to assess whether the effects of the designation might unduly burden a particular group or economic sector. The economic analysis provides estimated costs of the foreseeable potential economic impacts of the critical habitat designation for the two cacti over the next 20 years (2013 to 2032), which was determined to be the appropriate period for analysis. This is because limited planning information is available for most activities to forecast activity levels for projects beyond a 20-year timeframe.

The FEA quantifies economic impacts of the acuña cactus and Fickeisen plains cactus conservation efforts associated with the following categories of activity: (1) U.S.–Mexican border activities; (2) livestock grazing; (3) uranium mining; (4) commercial development; (5) recreational activities; (6) road construction and maintenance; and (7) species and habitat management. The total potential incremental economic impacts for all of the categories in areas proposed as acuña cactus critical habitat over the next 20 years is \$34,000, an annualized impact of \$2,200 (assuming a 7 percent discount rate). The total potential incremental economic impacts for the Fickeisen plains cactus are forecast to be \$39,000, an annualized impact of \$2,500, in areas proposed for critical habitat designation and \$22,000, an annualized impact of \$1,400, in areas considered for exclusion.

The Service considered the economic impacts of the critical habitat designation and the Secretary is not exercising her discretion to exclude any areas from this designation of critical habitat for the acuña cactus and Fickeisen plains cactus based on economic impacts.

A copy of the FEA with supporting documents may be obtained by contacting the Arizona Ecological Services Field Office (see **ADDRESSES**) or by downloading from the Internet at *<http://www.regulations.gov>*.

### **Exclusions Based on National Security Impacts or Homeland Security Impacts**

Under section 4(b)(2) of the Act, we consider whether there are lands where a national security impact might exist. Department of Defense lands that are exempted from critical habitat designation for the acuña cactus in this final rule include the BMGR, as discussed above in *Application of Section 4(a)(3) of the Act*, above. Additionally, there are specific areas of acuña cactus habitat included in this final rule that are not owned or managed by the Department of Defense, but on which the U.S. Customs and Border Protection (CBP) operates along the U.S.–Mexico border. The U.S. Customs and Border Protection is tasked with maintaining national security interests along the nation’s international borders. In order to achieve and maintain effective control of the United States border, CBP, through its component, the U.S. Border Patrol, requires continuing and regular access to certain portions of the area designated as critical habitat. Because CBP’s border security mission has an important link to national security, CBP may identify impacts to national security that may result from designating critical habitat. We do not have information currently indicating that lands within the designation of critical habitat for the acuña cactus will have an impact on national security.

We also anticipate no impact on national security from the final designation of critical habitat for the Fickeisen plains cactus. Therefore, we did not propose an exclusion on this basis.

### *Exclusions Based on Other Relevant Impacts*

Under section 4(b)(2) of the Act, we consider any other relevant impacts, in addition to economic impacts and impacts on national security. We consider a number of factors including whether there are permitted conservation plans covering the species in the area such as HCPs, safe harbor agreements, or candidate conservation agreements with assurances, or whether there are non-permitted conservation agreements and partnerships that would be encouraged by designation of, or exclusion from, critical habitat. In addition, we look at the existence of tribal conservation plans and partnerships and consider the government-to-government relationship of the United States with tribal entities. We also consider any social impacts that might occur because of the designation.

#### **Private or Other Non-Federal Conservation Plans or Agreements and Partnerships, in General**

We sometimes exclude specific areas from critical habitat designations based in part on the existence of private or other non-Federal conservation plans or agreements and their attendant partnerships. A conservation plan or agreement describes actions that are designed to provide for the conservation needs of a species and its habitat, and may include actions to reduce or mitigate negative effects on the species caused by activities on or adjacent to the area covered by the plan. Conservation plans or agreements can be developed by private entities with no Service involvement, or in partnership with the Service.

We evaluate a variety of factors to determine how the benefits of any exclusion and the benefits of inclusion are affected by the existence of private or other non-Federal conservation plans or agreements and their attendant partnerships when we undertake a discretionary 4(b)(2) exclusion analysis. A non-exhaustive list of factors that we will consider for non-permitted plans or agreements is shown below. These factors are not required elements of plans or agreements, and all items may not apply to every plan or agreement.

- (i) The degree to which the plan or agreement provides for the conservation of the species or the essential physical or biological features (if present) for the species;
- (ii) Whether there is a reasonable expectation that the conservation management strategies and actions contained in a management plan or agreement will be implemented;
- (iii) The demonstrated implementation and success of the chosen conservation measures;
- (iv) The degree to which the record of the plan supports a conclusion that a critical habitat designation would impair the realization of benefits expected from the plan, agreement, or partnership;
- (v) The extent of public participation in the development of the conservation plan;
- (vi) The degree to which there has been agency review and required determinations (e.g., State regulatory requirements), as necessary and appropriate;
- (vii) Whether National Environmental Policy Act (NEPA; 42 U.S.C. 4321 et seq.) compliance was required; and
- (viii) Whether the plan or agreement contains a monitoring program and adaptive

management to ensure that the conservation measures are effective and can be modified in the future in response to new information.

*Babbitt Ranches, LLC, Partnership*

We have determined that the private lands owned by the Babbitt Ranches, LLC, and State land with a land closure in place that is managed by the Babbitt Ranches, LLC, warrant exclusion from the final designation of critical habitat under section 4(b)(2) of the Act. We made this determination because the benefits of exclusion outweigh the benefits of including those lands in critical habitat based on our conservation partnership with the Babbitt Ranches, LLC, and their efforts to preserve the integrity of the cactus' habitat as evidenced by their management plan. The following represents our rationale for excluding certain lands owned or managed by the Babbitt Ranches, LLC, that are within the proposed Cataract Canyon Unit and Gray Mountain Unit from the final designated critical habitat for the Fickeisen plains cactus.

The Babbitt Ranches, LLC, is a family-owned business that has been in operation for over 120 years. It has dedicated itself to managing large landholdings in northern Arizona while raising cattle and American Quarter Horses in a sustainable manner. They own and operate three cattle ranches in northern Arizona—the Cataract, CO Bar, and Espee Ranches. The Cataract and CO Bar Ranch include areas occupied by the Fickeisen plains cactus and areas proposed as critical habitat (as described above). Besides cattle ranching, the Babbitt Ranches, LLC, support public recreational opportunities, wildlife



conservation, and scientific research on the lands they own or manage.

We proposed to designate Fickeisen plains cactus critical habitat in the proposed Cataract Canyon Unit and Gray Mountain Unit, both of which are located on a mix of State trust land, Federal land, and private land owned by the Babbitt Ranches. The proposed Cataract Canyon Unit is located on the Cataract Ranch. It contains 7,768 ha (19,196 ac) of State trust and private land that is managed collectively as an active cattle ranch. The Gray Mountain Unit (Unit 6) contains two subunits that straddle both sides of Highway 89 and total 1,656 ha (4,095 ac), and the unit are within the CO Bar Ranch. These subunits are located by the town of Gray Mountain and are adjacent to the boundary of the Navajo Nation. The proposed Mays Wash Subunit 6a contains 697 ha (1,724 ac) and is a checkerboard of Federal, State trust, and private parcels within the CO Bar Ranch. The proposed Gray Mountain Subunit 6b contains 960 ha (2,371 ac) of State trust and private parcels with a small number of acres owned by the Babbitt Ranches, LLC, and the remainder to another private landowner.

The Babbitt Ranches, LLC, has a strong record of land stewardship, and they have developed a strong partnership with the Service as a result. Their commitment to conserving species is supported by their cooperative efforts with other private organizations, State, and other Federal agencies to better understand and preserve natural resources. For example, the Babbitt Ranches, LLC, participated with AGFD in the release of federally endangered black-footed ferrets (*Mustela nigripes*) on their ranch. In support of the ferret release program, the Babbitt Ranches, LLC, also invited AGFD to

annually map and monitor Gunnison's prairie dog (*Cynomys gunnisoni*) colonies.

Another example of the Babbitt Ranches, LLC, commitment to conservation is their gift of a 24-acre parcel of land to Northern Arizona University for an ecological center to be used by faculty and students.

The Fickeisen plains cactus has been documented on all three of the cattle ranches where critical habitat was proposed. The second largest population of Fickeisen plains cactus in existence occurs on the Cataract Ranch, which supports 66 percent of the 466 individual Fickeisen plains cacti in the rangewide population. Individual cacti were first documented on Cataract Ranch in 2006. The population appeared to be healthy and viable by the different age classes observed, and the surrounding habitat showed little disturbance with the natural vegetative community intact. Thus, the status of this population further confirms that the holistic management of Cataract Ranch has been beneficial to the Fickeisen plains cactus.

On the State lands that are part of the Cataract Ranch, a land closure order was put in place in 1986. The order states: "The State land commissioner has determined that the best interests of the State trust would be served by closing the State land described in the caption of this Order to mineral claim location, new mineral prospecting permit applications, and new mineral lease applications." In 2011, a second closure order was enacted in which the State land commissioner determined that the best interests of the Trust would be served by closing "the State subsurface land to mineral claim location, new mineral exploration permits applications and new mineral lease applications."

The Babbitt Ranches, LLC, also submitted to the Service a Draft Fickeisen Plains Cactus Management Plan for Cataract Ranch and the Draft Espee Ranch Regional Conservation and Land Use Plan. Although the latter incorporates the Fickeisen Plains Cactus Management Plan into a broader, regional vision and focuses on conservation actions across all of the Babbitt Ranches, we focused our review on the commitments described for the Fickeisen plains cactus on Cataract Ranch because the majority of the proposed critical habitat occurs there. The Draft Fickeisen Plains Cactus Management Plan for Cataract Ranch commits to continuing to sustain healthy ecosystems, wildlife habitats, and biological diversity. As an active ranching operation, they have practiced this philosophy in the past, and will continue to adhere to their land ethics, which have preserved native grasslands and shrub-steppe habitats that incidentally benefit the Fickeisen plains cactus and its pollinators. They have a commitment to managing the ranches in an ecologically responsible fashion, which is evident in The Nature Conservancy's assessment of the land for a conservation easement, and by NRCS' rangeland inventory. Additional conservation measures for the Fickeisen plains cactus and its habitat within lands owned or managed by the Babbitt Ranches, LLC, include:

- A commitment to continuing surveys for the Fickeisen plains cactus on the three ranches and to working with the Service and others to develop Fickeisen plains cactus survey and monitoring protocols that can be employed rangewide.
- Utilizing the best grazing management practices to sustain rangeland health

and Fickeisen plains cactus habitat over time through a rest rotation grazing system and by moving livestock among pastures based upon forage utilization and seasonal moisture. By this method, the timing, intensity, and frequency of grazing is controlled to allow forage and rangeland habitats to recover between grazing periods. Depending upon range conditions and the terms of grazing leases, maximum utilization of the forage production can range from roughly 35 to 50 percent. Babbitt Ranches, LLC, generally keeps their stocking rates below standard Animal Unit Months and grazing lease maximums. Although a written prescription is not followed for determining the number of cattle to keep on a pasture and length of time, livestock will continue to be managed to sustain productive forage and an intact ecosystem that integrates their commitment to conservation and healthy landscapes.

- Willingness to participate in any study or program related to collection, propagation, banking, and translocation of the Fickeisen plains cactus if such measures are considered feasible or desirable for survival and recovery of the taxon in response to climate change and extended droughts.
- Collecting information on small mammal predation during monitoring, and if it becomes an issue on lands owned or managed by the Babbitt Ranches, LLC, measures designed to exclude predators from Fickeisen plains cactus populations will be investigated.

As discussed above under *Application of Section 4(b)(2) of the Act*, the primary effect of designating any particular area as critical habitat is the requirement for Federal agencies to consult with us under section 7 of the Act to ensure actions they carry out, authorize, or fund do not adversely modify designated critical habitat. Absent critical habitat designation in occupied areas, Federal agencies remain obligated under section 7 of the Act to consult with us on actions that may affect a federally listed species to ensure such actions do not jeopardize the species' continued existence. The analysis of effects to critical habitat is a separate and different analysis from that of the effects to the species. Therefore, the difference in outcomes of these two analyses represents the regulatory benefit of critical habitat. The regulatory standard is different, as the jeopardy analysis investigates the action's impact on the survival and recovery of the species, while the adverse modification analysis focuses on the action's effects on the designated habitat's contribution to conservation. This will, in many instances, lead to different results and different regulatory requirements. Thus, critical habitat designations may provide greater benefits to the recovery of the species than listing alone.

For some species (including Fickeisen plains cactus), and in some locations (in particular, those occupied by the taxon), the outcome of these analyses will be similar, because effects to habitat will often also result in effects to the species, and it is often difficult or impossible to differentiate between actions that avoid jeopardy to the species and actions needed solely to avoid destruction or adverse modification of critical habitat. Although all of the land excluded in this critical habitat designation is occupied by the taxon, the taxon occurs in low densities with individuals commonly spaced far apart. In

some areas, impacts to critical habitat or, more specifically, the primary constituent elements will not result in direct impacts to the Fickeisen plains cactus. Therefore, the outcome of an adverse modification analysis in these areas would differ from the outcome of a jeopardy analysis.

Critical habitat may provide a regulatory benefit for the Fickeisen plains cactus when there is a Federal nexus present for a project that might adversely modify critical habitat. A Federal nexus generally exists where land is federally owned, or where actions proposed on non-Federal lands require a Federal permit or Federal funding. In the absence of a Federal nexus, the regulatory benefit provided through section 7 consultation under the Act does not exist. Any activities over which a Federal agency has discretionary involvement or control affecting designated critical habitat on Federal land would trigger a requirement to consult under section 7 of the Act. The Mays Wash subunit contains Federal land; the remainder of the proposed critical habitat in the proposed Cataract Canyon Unit and Gray Mountain Unit comprise State trust land and private land.

On the CO Bar Ranch, there are 87 ha (215 ac) of State trust land and 246 ha (609 ac) of BLM land that are split estate with BLM having subsurface mineral rights. These lands were included in the Gray Mountain Unit in the proposed critical habitat designation. On these lands, there is the potential for subsurface mineral operations, which would be outside of the management control of the Babbitt Ranches, LLC. Inclusion of these lands in a critical habitat designation would require the BLM to consult

with the Service in order to ensure that the primary constituent elements are not adversely modified or destroyed. These regulatory benefits of inclusion are limited to areas with the potential to have a Federal nexus, and, thus, generally limited to these 87 ha (215 ac) of split estate State trust land and 246 ha (609 ac) of BLM land.

Although no Federal land exists within the proposed Cataract Canyon Unit, there is potential for a Federal nexus for activities proposed on the Cataract Ranch due to Federal funding. The Babbitt Ranches, LLC, have partnered with the NRCS in the past and may again in the future. Most Federal actions would be beneficial such as rangeland improvements, invasive plant eradication, and wildlife habitat enhancements. However, as a result of the establishment and implementation of protections associated with a 13,953-ha (34,480-ac) conservation easement referred to as the Coconino Plateau Natural Reserve Lands, it is unlikely that future Federal actions would impact the overall goal of the easement. The land was placed under the easement for the goal of protecting and preserving the historical and cultural aspects of the property as an active agricultural and livestock operation; and to preserve the conservation and open space values of the property by continuing to establish, define, and promote private land stewardship and a historical sense of obligation and responsibility for the land and its ecology. Because of protection of these lands, it is unlikely that future Federal actions would cause adverse modification of Fickeisen plains cactus critical habitat. If actions that could affect Fickeisen plains cacti and their habitat do occur, it is likely that the protections provided the taxon and its habitat under section 7(a)(2) of the Act would be largely redundant with the protections offered by the conservation easement.

Additionally, lands in the proposed Cataract Canyon Unit may have additional conservation value because the Babbitt Ranches, LLC, practice sustainable cattle ranching to maintain native vegetation communities and to improve and protect overall rangeland health. These efforts promote the conservation of suitable Fickeisen plains cactus habitat. The established purpose of the conservation easement is intended to protect the existing functional values of the native biotic communities, which sustain the cactus. Therefore, it is unlikely that Federal actions or actions conducted by the Babbitt Ranches, LLC, would result in depreciable diminishment or a long-term reduction of the capability of Fickeisen plains cactus habitat to recover. As a result, any rare Federal action that may result in formal consultation will likely result in only discretionary conservation recommendations (i.e., adverse modification threshold is not likely to be reached). We believe there is an extremely low probability of mandatory elements (i.e., reasonable and prudent alternatives) arising from formal section 7 consultations that include consideration of designated Fickeisen plains cactus critical habitat. As a result, the benefits of including these lands in the final critical habitat designation are reduced.

The designation of critical habitat for the Fickeisen plains cactus on Babbitt Ranches, LLC, would bring awareness of the cactus' presence to the State of Arizona during their review of mining leases, exploratory permits, or other land use activities under State control. Prior to any land-disturbing activity on State trust land by a project proponent, the Arizona State Land Department requires a pre-construction native plant survey. The required native plan survey would determine the compensation that must be



paid to the Arizona State Land Department for the removal of specific cacti, including the Fickeisen plains cactus, which is currently considered a “highly safeguarded protected” plant. However, any action taken between the State and an application to protect or conserve the Fickeisen plains cactus or designated critical habitat from mineral activities would be at their discretion. Because it is unlikely that there would be a Federal nexus on State trust land unless a permit is required from a Federal agency or funding is appropriated, the educational benefits of including these lands in the final designation of critical habitat is minimized.

Another important benefit of including Babbitt Ranches, LLC, lands in a critical habitat designation is that the designation can serve to educate other landowners, agencies, neighboring tribes, and the public regarding the potential conservation value of an area, and may help focus conservation efforts on areas of high conservation value for certain species. Any information about the Fickeisen plains cactus, its endemism, and its rarity, that reaches a wide audience, including parties engaged in conservation activities, is valuable. However, the educational benefits of designating critical habitat for the Fickeisen plains cactus on the Babbitt Ranches, LLC, are small compared to those derived through conservation efforts currently being implemented.

#### Benefits of Exclusion—Babbitt Ranches, LLC

The benefits of excluding land owned by the Babbitt Ranches, LLC, from the designation of critical habitat for the Fickeisen plains cactus are substantial and include:

(1) Continuance and strengthening of our effective working relationship with the Babbitt Ranches, LLC, NRCS, and the Arizona State Land Department to promote voluntary, proactive conservation of the Fickeisen plains cactus and its habitat as opposed to reactive regulation; (2) allowance for continued meaningful collaboration and cooperation in working toward species recovery, including conservation benefits that might not otherwise occur; and (3) encouragement of developing additional conservation easements and other conservation and management plans in the future for other federally listed and sensitive species.

Additionally, many landowners perceive critical habitat as an unfair and unnecessary regulatory burden. According to some researchers, the designation of critical habitat on private lands significantly reduces the likelihood that landowners will support and carry out conservation actions (Main *et al.* 1999, p. 1,263; Bean 2002, p. 2). The magnitude of this negative outcome is greatly amplified in situations where active management measures (such as reintroduction, fire management, and control of invasive species) are necessary for species conservation (Bean 2002, pp. 3–4). We believe the judicious exclusion of specific areas of non-federally owned lands from critical habitat designations can contribute to species recovery and provide a superior level of conservation than critical habitat alone. The Service believes that, where consistent with the discretion provided by the Act, it is necessary to implement policies that provide positive incentives to private landowners to voluntarily conserve natural resources and that remove or reduce disincentives to conservation (Wilcove *et al.* 1996, pp. 1–15; Bean 2002, pp. 1–7).

We believe it is essential for the recovery of the Fickeisen plains cactus to build on continued conservation activities such as these with proven partners like the Babbitt Ranches, LLC. Exclusion of the entire Cataract Ranch (on the proposed Cataract Canyon Unit) will help preserve the partnership that we have established with the Babbitt Ranches, LLC, and with State agencies and local governments to foster future partnerships and encourage the establishment of future conservation and management of habitat for the Fickeisen plains cactus and other sensitive taxa. Furthermore, exclusion of the portions of the proposed Mays Wash subunit that are privately owned and managed by the Babbitt Ranches, LLC, will help preserve our partnership.

The Babbitt Ranches, LLC, have maintained an effective working relationship with many public and government entities including the Service for many years for the purpose of achieving their own values as agricultural landowners, which are described in the Constitution of Babbitt Ranches and evidenced by their management actions. The Babbitt Ranches, LLC, management plan and the conservation easement establishing the Coconino Plateau Natural Reserve Lands provides substantial protection and management for the Fickeisen plains cactus. Specifically, both the management plan and easement provide protection and management of the physical or biological features essential to the conservation of the taxon, and address conservation issues from a coordinated, integrated perspective. Therefore, the management plan and easement are expected to result in coordinated landscape-scale conservation that can contribute to genetic diversity by preserving the population, habitat, and native pollinators and their

habitat that support recovery of the cactus and other endemic wildlife species.

In summary, we believe excluding State trust land (subject to land closure) managed by the Babbitt Ranches, LLC, and lands owned by the Babbitt Ranches, LLC, from the critical habitat designation will provide the significant benefit of maintaining our existing partnership and fostering new ones.

#### Benefits of Exclusion Outweigh the Benefits of Inclusion

We evaluated the exclusion of approximately 7,768 ha (19,196 ac) of private and State land within the boundaries of the proposed Cataract Canyon Unit from our proposed designation of critical habitat, and we determined the benefits of excluding all of these lands outweigh the benefits of including them as critical habitat for the Fickeisen plains cactus. We also evaluated the exclusion of approximately 1,656 ha (4,095 ac) of private, State, and Federal land managed by the Babbitt Ranches, LLC, within the boundaries of the proposed Gray Mountain Unit from our proposed designation of critical habitat. We have determined the benefits of excluding 371 ha (917 ac) of private land within the Mays Wash Subunit of the Gray Mountain Unit outweigh the benefits of including the area as critical habitat for the Fickeisen plains cactus.

The Babbitt Ranches have been and will continue to be managed to support sustainable cattle operations in response to variable annual climatic conditions and long-term shifts in global temperatures and precipitation, and in a manner that is consistent

with the philosophy and land ethic of Babbitt Ranches, LLC, that is formalized in their constitution. Their holistic approach to managing their land use activities with the economic and social communities has contributed to the existence of a large, reproducing Fickeisen plains cactus population, which we recognized in the October 1, 2013, final listing rule (78 FR 60608).

The Service believes the additional regulatory and educational benefits of including these lands as critical habitat are relatively small, because of the unlikelihood of a Federal nexus on the private and State trust lands within the proposed critical habitat designation. These benefits are further reduced by the existence of a 13,953-ha (34,480-ac) conservation easement on the Cataract Ranch that contains 2,848 ha (7,037 ac) of proposed critical habitat. We anticipate that there will be little additional Federal regulatory benefit to the taxon on State trust land because there is a low likelihood that those parcels will be negatively affected to any significant degree by Federal activities requiring section 7 consultation, and ongoing management activities indicate there would be no additional requirements pursuant to a consultation that addresses critical habitat.

All areas that were proposed for critical habitat on the Babbitt Ranches, LLC, are occupied by the taxon. The educational benefits of including these lands are small. The designation of critical habitat can serve to educate the general public as well as conservation organizations regarding the potential conservation value of an area, but this goal is already being accomplished. Through the identification of deeded land as the Coconino Plateau Natural Reserve Lands and the Babbitt Ranches Land Steward

Institute, an educational and research platform is already established for partners wishing to collaborate with the Babbitt Ranches on ecological research needs. Given the history of collaborating and partnering with Federal and State agencies, local governments, research institutions, and other partners to sustain native grasslands and wildlife conservation, the Service anticipates that the conservation strategies described in the Babbitt Ranches draft Fickeisen Plains Cactus Management Plan will be implemented in the future.

In summary, we find that excluding areas from critical habitat that are receiving both long-term conservation and management for the purpose of protecting the native grassland ecosystem, and thus the habitat that supports the Fickeisen plains cactus, will preserve our partnership with the Babbitt Ranches, LLC, and encourage future collaboration towards conservation and recovery of listed species. The partnership benefits are significant and outweigh the small potential regulatory, educational, and ancillary benefits of including the land in the final critical habitat for the Fickeisen plains cactus. Therefore, the conservation easement and the overall management of Babbitt Ranches, LLC, provides greater protection of habitat for the Fickeisen plains cactus than could be gained through the project-by-project analysis of a critical habitat designation.

#### Exclusion Will Not Result in Extinction of the Species—Babbitt Ranches, LLC

We determined that the exclusion of 7,768 ha (19,196 ac) of land within the boundaries of the proposed Cataract Canyon Unit and 371 ha (917 ac) of private land

within Mays Wash Subunit of the Gray Mountain Unit for the Fickeisen plains cactus will not result in extinction of the taxon. Protections afforded the taxon and its habitat by the conservation easement and the history of land stewardship of Babbitt Ranches, LLC, as described in the Babbitt Ranches Draft Fickeisen Plains Cactus Management Plan, provide assurances that the taxon will not go extinct as a result of excluding these lands from the critical habitat designation. The jeopardy standard of section 7 of the Act will also provide protection in these occupied areas when there is a Federal nexus. Therefore, based on the above discussion, the Secretary is exercising her discretion to exclude 8,139 ha (20,113 ac) of land from the designation of critical habitat for Fickeisen plains cactus.

### ***Tribal Lands***

There are several Executive Orders, Secretarial Orders, and policies that relate to working with Tribes. These guidance documents generally confirm our trust responsibilities to Tribes, recognize that Tribes have sovereign authority to control Tribal lands, emphasize the importance of developing partnerships with Tribal governments, and directs the Service to consult with Tribes on a government-to-government basis.

A joint Secretarial Order that applies to both FWS and NMFS, Secretarial Order 3206, *American Indian Tribal Rights, Federal–Tribal Trust Responsibilities, and the Endangered Species Act* (June 5, 1997) (S.O. 3206), is the most comprehensive of the various guidance documents related to Tribal relationships and Act implementation, and it provides the most detail directly relevant to the designation of critical habitat. In addition to the general direction discussed above, S.O. 3206 explicitly recognizes the right of Tribes to participate fully in the listing process, including designation of critical

habitat. The Order also states: “Critical habitat shall not be designated in such areas unless it is determined essential to conserve a listed species. In designating critical habitat, the Services shall evaluate and document the extent to which the conservation needs of the listed species can be achieved by limiting the designation to other lands.” In light of this instruction, when we undertake a discretionary 4(b)(2) exclusion analysis, we will always consider exclusions of Tribal lands under section 4(b)(2) of the Act prior to finalizing a designation of critical habitat, and will give great weight to Tribal concerns in analyzing the benefits of exclusion.

However, S.O. 3206 does not preclude us from designating Tribal lands or waters as critical habitat, nor does it state that Tribal lands or waters cannot meet the Act’s definition of “critical habitat.” We are directed by the Act to identify areas that meet the definition of “critical habitat” (i.e., areas occupied at the time of listing that contain the essential physical or biological features that may require special management or protection and unoccupied areas that are essential to the conservation of a species), without regard to landownership. While S.O. 3206 provides important direction, it expressly states that it does not modify the Secretaries’ statutory authority.

#### Tohono O’odham Nation

We have worked with the Tohono O’odham Nation to consolidate information on their past, present, and future voluntary measures and management to conserve the acuña cactus and its habitat on their lands. We have determined, pursuant to section 4(b)(2) of the Act, that we will exclude approximately 156 ha (385 ac) of Tohono O’odham Nation land in Unit 3 from the final designation of critical habitat for the acuña cactus. As



described in our discretionary exclusion analysis below, we have reached this determination because the benefits of excluding their lands from the final critical habitat designation outweigh the benefits of including their lands in the designation due to our ongoing and effective working partnership with the Tohono O’odham Nation.

The Tohono O’odham Nation is located in southern Arizona on lands in Pima, Pinal, and Maricopa Counties. The Tohono O’odham Nation encompasses 1,133,120 ha (2,800,000 ac) of land and is divided into 11 districts. The Tohono O’odham Nation’s eastern boundary is located approximately 24 kilometers (km) (15 miles (mi)) west of the city of Tucson, and the administrative center is in the town of Sells, approximately 89 km (55 mi) southwest of Tucson. We continue to work with the Tohono O’odham Nation and the Bureau of Indian Affairs (BIA) on wildlife and plant-related projects including recovery efforts for Sonoran pronghorn (*Antilocapra americana sonoriensis*) and jaguar (*Panthera onca*) as well as surveys and monitoring for Pima pineapple cactus, jaguar, ocelot (*Leopardus pardalis*), lesser long-nosed bat (*Leptonycteris curasoae yerbabuenae*), and cactus ferruginous pygmy owls (*Glaucidium brasilianum cactorum*). We have established and maintain a cooperative working relationship with the Tohono O’odham Nation and the BIA when they request review of environmental assessments, seek technical advice, and conduct consultations for Tohono O’odham Nation projects. Surveys for any listed species are conducted by the BIA or Tohono O’odham Nation personnel prior to implementation of projects. In April of 2003, the Tohono O’odham Nation and the Service signed a Statement of Relationship that indicates the Tohono O’odham Nation, through its Natural Resources Department, will work in close

collaboration with the Service to provide effective protections for listed species. In addition, the Service awarded a Tribal Wildlife Grant to the Tohono O’odham Nation in 2010 to conduct an inventory of the flora and fauna of the Baboquivari Mountains on Tribal lands. This information will be used to inform the management and conservation of wildlife and plant resources on Tribal lands in this area, including listed and sensitive species.

As a sovereign entity, the Tohono O’odham Nation seeks to continue to protect and manage their resources according to their traditional and cultural practices. The Tohono O’odham Nation requested that their land be excluded from the designation of critical habitat for the acuña cactus due to their sovereign status and their right to manage their own resources. They are concerned that critical habitat designation on their land would limit the Nation’s right to self-determination and self-governance. The Tohono O’odham Nation recognizes that their land contains acuña cactus individuals and habitat, and they consider acuña cactus, like all cacti, to be culturally significant. Tohono O’odham Nation conservation measures to protect the acuña cactus include project review prior to ground-disturbing activity and surveys.

#### Benefits of Inclusion—Tohono O’odham Nation

Federal agencies, in consultation with the Service, must ensure that their actions are not likely to jeopardize the continued existence of any listed species or result in the destruction or adverse modification of any designated critical habitat of such species.

The difference in the outcomes of the jeopardy analysis and the adverse modification analysis represents the regulatory benefit and costs of critical habitat. The areas proposed as critical habitat that occur within the Tohono O’odham Nation are occupied by the acuña cactus and, therefore, if a Federal action or permitting occurs, there is a catalyst for evaluation under section 7 of the Act whether or not the area is designated as critical habitat.

Few regulatory benefits to the acuña cactus would be gained from a designation of critical habitat on the Tohono O’odham Nation lands, because the Nation already requires project review prior to any ground-disturbing activity due to the recognition of the cactus as a culturally significant plant and because the species is already listed. Because these conservation measures are already in place, it would be highly unlikely that any consultation would result in a determination of adverse modification. In addition, during coordination with the Tohono O’odham Nation, the Tribe indicated that they are not considering any project actions in the area where acuña cactus occur. Therefore, we also do not anticipate that Tribal actions would be likely to result in adverse impacts to acuña cactus requiring formal section 7 consultations. For these reasons, the regulatory benefit of a critical habitat designation on these lands is minimized.

There is the possible benefit that additional funding could be generated for habitat improvement in an area being designated as critical habitat. Tribes often seek additional sources of funding in order to conduct wildlife-related conservation activities. Therefore,

having an area designated as critical habitat could improve the chances of receiving funding for acuña cactus habitat-related projects.

Another possible benefit of including lands in a critical habitat designation is that the designation can serve to educate the public regarding the potential conservation value of an area, and this may focus conservation efforts on areas of high conservation value for certain species. However, the Tohono O’odham Nation lands were included in the proposed designation of critical habitat; the proposal itself has reached a wide audience and has, thus, provided information to the broader public, as well as the BIA and the Tribe, about the conservation value of this area. Since publication of the proposed critical habitat designation, the Tribe has conducted a survey to locate acuña cactus within areas proposed as critical habitat. Therefore, additional educational benefits of an acuña cactus critical habitat designation on Tohono O’odham Nation lands are minimized.

#### Benefits of Exclusion—Tohono O’odham Nation

The proposed critical habitat designation includes approximately 156 ha (385 ac) of Sonoran desert-scrub habitat with the Tohono O’odham Nation boundaries. Benefits of excluding these Tribal lands from designated critical habitat include the continuance and strengthening of our ongoing and effective working relationship with Tohono O’odham Nation to promote the conservation of listed species, including the acuña cactus and its habitat. We recognize and endorse the resource management activities of the

Nation with regard to listed species and have been informed of the development of a draft land management plan for the Tohono O'odham Nation, which will include conservation measures for the acuña cactus. We have established a working relationship with Tohono O'odham Nation through informal and formal meetings that offered information sharing, technical advice, assistance, and recommended conservation measures for acuña cactus and its habitat. We find that conservation benefits (e.g., acuña cactus surveys and project review) are being provided to the acuña cactus and its habitat through our cooperative working relationship with the Tohono O'odham Nation.

We assign great weight to the benefits of excluding Tribal lands, which would honor our cooperative partnership with the Tribe. During our discussions with the Tohono O'odham Nation and through a letter received during our first public comment period, we were informed that the designation of critical habitat on Tribal land would be viewed as an intrusion on their sovereign ability to manage natural resources in accordance with their own policies, customs, and laws. To this end, we found that the Tohono O'odham Nation would prefer to work with us on a government-to-government basis. For these reasons, we believe that our working relationship with the Tohono O'odham Nation would be better maintained and more effective if they are excluded from the designation of critical habitat for the acuña cactus. The benefits of excluding this area from critical habitat will encourage the continued cooperation and development of data-sharing and management plans for this and other listed species. If this area is designated as critical habitat, we believe it is unlikely that sharing of information related to the acuña cactus would occur.

### Benefits of Exclusion Outweigh the Benefits of Inclusion—Tohono O’odham Nation

The benefits of including the Tohono O’odham Nation in critical habitat are small and are limited to educational and regulatory benefits. However, as discussed above, these educational benefits are minimized because they have been provided for already through including lands on the Nation in the proposed critical habitat designation. Similarly, the regulatory benefits are minimized because all areas proposed as critical habitat within the Tohono O’odham Nation are occupied and, thus, already subject to section 7 of the Act regardless of a critical habitat designation. Therefore, it is highly unlikely that any consultation would result in a determination of adverse modification. Alternatively, the benefits of excluding these areas from critical habitat for the acuña cactus are more significant and include encouraging the continued partnership with the Tribe as well as development and implementation of special management measures such as project review prior to ground-disturbing activity and surveys. These activities will allow the Tohono O’odham Nation to manage their natural resources to benefit the acuña cactus without the perception of Federal government intrusion that would occur if we designated critical habitat on their land. This philosophy is also consistent with our published policies on Native American natural resource management. The exclusion of this area will likely also provide additional benefits to the species that would not otherwise be available to encourage and maintain cooperative working relationships. Therefore, we find that the benefits of excluding Tohono O’odham Nation lands from critical habitat designation outweigh the benefits of including this area.

### Exclusion Will Not Result in Extinction of the Species—Tohono O’odham Nation

As noted above, the Secretary, under section 4(b)(2) of the Act, may exclude areas from the critical habitat designation unless it is determined, “based on the best scientific and commercial data available, that the failure to designate such area as critical habitat will result in the extinction of the species concerned.” We have determined that exclusion of the Tohono O’odham Nation from the critical habitat designation will not result in the extinction of the acuña cactus. The Tohono O’odham Nation has committed to protecting and managing the acuña cactus and is in the process of creating a natural resources management plan, which will include the acuña cactus as well as all listed plant and animal species found on their lands. In summary, the Tohono O’odham Nation has committed to conservation measures for the acuña cactus on their land that are at least equal to the conservation value that would be available through the designation of critical habitat. With the implementation of these conservation measures and ongoing coordination with the Tribe with regard to conservation of the acuña cactus, the exclusion of Tohono O’odham Nation land from proposed critical habitat will not result in extinction of the species. Accordingly, we have determined that the Tohono O’odham Nation should be excluded from acuña cactus critical habitat designation under section 4(b)(2) of the Act, because the benefits of exclusion outweigh the benefits of inclusion and will not cause the extinction of the species.

Navajo Nation

We have determined, pursuant to section 4(b)(2) of the Act, that we will exclude approximately 3,865 ha (9,554 ac) of Navajo Nation land in proposed Fickeisen plains cactus critical habitat Units 6 (Tiger Wash Unit), 7 (Little Colorado River Overlook Unit), and Subunit 8b (Gray Mountain Subunit) from the final designation of critical habitat for the Fickeisen plains cactus. We are excluding the entire Unit 6 and 7, along with all portions of Subunit 8b on Navajo Nation lands. As described in our discretionary exclusion analysis below, we have reached this determination because the benefits of excluding their lands from the final critical habitat designation outweigh the benefits of including their lands in the designation due to our ongoing and effective working relationship with the Navajo Nation.

The Navajo Nation recognizes the Fickeisen plains cactus as a species in need of protection and special management on lands they administer (RCF-014-91) (Navajo Nation 2013, p. 5). Their management plan would serve as a tool for conserving the cactus and its habitat on the Navajo Nation. The Navajo Nation Department of Fish and Wildlife (NNDFW) will review their management plan for effectiveness and make revisions according to the current status of the cactus under Navajo and Federal law. Reviews will be conducted every 5 years or when new, significant information about threats or management becomes available for the Fickeisen plains cactus.

The Navajo Nation Code, at 17 NNC section 507, recognizes the importance of endangered species, establishes a penalty for the disturbance of these species, and charges



the Director, NNDFW, with the responsibility to recommend to the Resources Committee of the Navajo Nation Council updates to the Navajo Endangered Species List (NESL). The first record of the Fickeisen plains cactus on the Navajo Nation is from 1956 (Navajo Nation 2013, p.10). The Navajo Nation listed the Fickeisen plains cactus as a Group 3 endangered species on the NESL in 1991 (RCF-014-91). A Group 3 species is a species or subspecies whose prospects of survival or recruitment are likely to be in jeopardy in the foreseeable future. The cactus was included on the NESL due to its limited geographic range, specificity of habitat requirements, low recruitment rate and decline in numbers, and threats from livestock grazing, ORV use, potential for recreational development within its habit, and illegal collection. There are 15 known occurrences of the Fickeisen plains cactus on the Navajo Nation with an estimated total population of 506 individuals.

The NNDFW has management authority for fish, wildlife, and native plants with regard to endangered and threatened species protection; and all temporary and permanent developments must receive clearance from the NNDFW. The NNDFW reviews a project's potential impact on protected wildlife or their habitat by using their Natural Heritage Database and various Tribal and Federal wildlife protection regulations, and recommends approval, disapproval, or conditional approval to the Resources and Development Committee. As a species included on the NESL, the Fickeisen plains cactus is protected from disturbance, and conservation of the cactus and its habitat will be facilitated primarily through the Navajo Nation's existing policies for managing and conserving natural resources.

In 2003, the Resources Committee of the Navajo Nation Council, by Resolution No. RCMA–34–03, approved the Biological Resources Land Use Clearance Policies and Procedures, also known as the Navajo Nation Resource Conservation Plan (RCP). The RCP is a tool used by the Navajo Nation, local chapters, and developers to guide environmentally responsible development and to protect resources of high conservation value, including habitats of listed species. The RCP is based on comprehensive rare and threatened species data held in a NNDFW NNHP database and identifies and defines habitats and landscapes on the Navajo Nation based on their conservation value. The RCP divides the Navajo Nation into six land status categories based on their biological sensitivity and uses these categories to manage actions in a way that minimizes impacts to sensitive species and habitats. The Fickeisen plains cactus is located in areas designated as Area 5 (biological preserves), Area 2 (medium sensitivity) and Area 3 (low sensitivity). Documentation of impacts that a proposed project may have on biological resources is required for each of these areas. The NNDFW provides technical assistance to the Nation, chapters, and developers in following the RCP, and assesses adherence to the RCP during project review for making recommendations to the Resources and Development Committee.

Area 5 lands (biological preserves) are landscapes of high wildlife value and little or no current development or disturbance, or are particularly important for one or more protected species. Permanent or temporary development within biological preserves is prohibited unless it is compatible with the management of those areas as wildlife habitat.

For development in biological preserves, the standard process for planning and approval of development, as described in the RCP, must be implemented. The NNDFW is committed to ensuring that any development that occurs in biological preserves is consistent with ecotourism principles.

The proposed Tiger Wash Unit, proposed Little Colorado River Overlook Unit, and portions of the proposed Gray Mountain Subunit occur on the Navajo Nation. These 3 proposed critical habitat units, including 9 of the 15 Fickeisen plains cactus populations on the Navajo Nation, are located within 2 biological preserves. These biological preserves are the Little Colorado River and Marble Canyon Preserves (Navajo Nation 2013, p. 17). The RCP thus creates an avenue for the NNDFW to recommend conservation measures to avoid or minimize impacts to plants and its habitat. Proposed development projects must demonstrate that impacts to protected species will be minimal, and the NNDFW strongly urges relocating projects to less sensitive habitats if possible.

Although NNDFW makes a strong effort to avoid impacts to habitats of sensitive species through project evaluation, some necessary developments may occur and efforts will be made to reduce, minimize, or mitigate potential project impacts. When a project could disturb Fickeisen plains cactus habitat, NNDFW requires the project sponsor to adhere to protocol surveys and avoidance restrictions. Projects with the potential to disturb or affect its habitat require a 61-m (200-ft) avoidance buffer from known plants. The size of the buffer is more or less dependent on the scope and scale of the proposed project.

The NNDFW recognizes the impact nonnative, invasive species have on the native vegetation community and to other listed species they manage on their land. They are uncertain whether exotic annual species negatively impact the Fickeisen plains cactus and its habitat. The Navajo Nation will monitor the presence of exotic annual species within occupied habitat and document any effects exotics may pose, including effects from a potential fire caused by overabundance of these species. The NNHP staff will incorporate a plant community survey into their monitoring efforts to record if there is a relationship between weed abundance and the status of the cactus population. If studies establish a causal relationship between abundance of exotics and declines in the Fickeisen plains cactus, they will implement conservation measures to control weed abundance. Proposed research with the Navajo Nation and other partners would examine potential effects of invasive species on the germination and establishment of the *Pediocactus bradyi* (Brady pincushion cactus). The results of the study, if conducted, could be applicable to the Fickeisen plains cactus since both *Pediocactus* species share similar habitats and have similar life-history traits. The Navajo Nation is working with the BIA and other partners to develop an Integrated Weed Management Plan for the Navajo Nation.

While livestock grazing is a traditional way of life for the Navajo people, the Navajo Nation recognizes that management is needed to address impacts that grazing has on the entire ecosystem, which supports habitat the Fickeisen plains cactus relies upon for survival. Efforts are under way by Navajo policy makers and agencies to address past

grazing impacts on the Navajo Nation and to improve grazing enforcement and protection of Navajo resources and ecosystems. For example, this year the Navajo Departments of Resource Enforcement and Agriculture, in the Division of Natural Resources, partnering with local chapters (municipal subdivisions of the Navajo government), have been conducting roundups to reduce overgrazing by stray, feral, and unpermitted livestock. Additionally, the Navajo Nation and BIA have been conducting public outreach regarding grazing impacts and the necessity of immediate and proactive steps to be taken to reduce grazing pressure and restore productivity of Navajo Nation rangelands.

#### Benefits of Inclusion—Navajo Nation

As discussed above under *Application of Section 4(b)(2) of the Act*, Federal agencies, in consultation with the Service, must ensure that their actions are not likely to jeopardize the continued existence of any listed species or result in the destruction or adverse modification of any designated critical habitat of such species. The difference in the outcomes of the jeopardy analysis and the adverse modification analysis represents the regulatory benefit and cost of critical habitat designation.

One important benefit of including lands in a critical habitat designation is that the designation can serve to educate the public regarding the potential conservation value of an area, and it may help focus management efforts on areas of high value for certain species. Any information about the Fickeisen plains cactus that reaches a wide audience, including parties engaged in conservation activities, is valuable. The Navajo Nation is currently working with the Service to address Fickeisen plains cactus habitat and

conservation, participate in research on the taxon to further our knowledge and recovery objectives, and exchange management information. Because the Navajo Nation has developed a Fickeisen Plains Cactus Management Plan, has been involved with the critical habitat designation process, and is aware of the value of their lands for conservation of the plant, the educational benefits of a Fickeisen plains cactus critical habitat designation on the Navajo Nation are minimized.

There is the possible benefit that additional funding could be generated for habitat improvement in an area being designated as critical habitat. Tribes often seek additional sources of funding in order to conduct wildlife-related conservation activities. Therefore, having an area designated as critical habitat could improve the chances of receiving funding for Fickeisen plains cactus habitat-related projects.

Therefore, because of the implementation of their tribal management plan, rare initiation of formal section 7 consultations for listed plants and other listed species, and overall coordination with the Navajo Nation on the Fickeisen plains cactus, it is anticipated that there may be some, but limited, benefits from including tribal land in a Fickeisen plains cactus critical habitat designation. The principal benefit of any designated critical habitat is that activities in and affecting such habitat require consultation under section 7 of the Act. Such consultation would ensure that adequate protection is provided to avoid destruction or adverse modification of critical habitat. However, with the Navajo Nation implementing the RCP, which acts already to conserve Fickeisen plains cactus habitat combined with the rarity of Federal actions resulting in

formal section 7 consultations, the benefits of a critical habitat designation are minimized.

#### Benefits of Exclusion—Navajo Nation

The proposed critical habitat designation includes approximately 3,865 ha (9,554 ac) of habitat within the Navajo Nation boundaries. Benefits of excluding these Tribal lands from designated critical habitat include the continuance and strengthening of our ongoing and effective working relationship with Navajo Nation to promote the conservation of listed species, including the Fickeisen plains cactus and its habitat. We recognize and endorse the resource management activities of the Tribe with regard to listed species and have collaborated with the Tribe in the development of a Fickeisen plains cactus management plan. We have established a working relationship with the Navajo Nation through informal and formal meetings that offered information sharing, technical advice, assistance, and recommended conservation measures for the Fickeisen plains cactus and its habitat. We find that conservation benefits are being provided to the Fickeisen plains cactus and its habitat through our cooperative working relationship with the Navajo Nation.

As evidence of this partnership, during the development of the Fickeisen plains cactus critical habitat proposal, we met informally and communicated with staff of the NNDFW and NNHP to discuss how the Navajo Nation might be affected by the regulations associated with Fickeisen plains cactus management, recovery, and the

designation of critical habitat. As such, we established a relationship specific to Fickeisen plains cactus listing. As part of our relationship, we provided technical assistance to them in their development of a Fickeisen plains cactus management plan, which documented measures they have been implementing for the conservation of this species and its habitat on their lands. This plan is in our supporting record for this decision. Consistent with long-standing tribal sovereignty concepts and past consultations with tribes, the Navajo Nation expressed that they have an inherent right to sovereignty and self-determination over their own lands and natural resources. Additionally, their lands are connected to their cultural and religious beliefs, and as a result they have a strong commitment and reverence toward its stewardship and conservation. They recognize that promoting healthy ecosystems and protecting the Fickeisen plains cactus and its habitat are common goals they share with the Service.

As described above, the Navajo Nation has a project-by-project review process in place that allows evaluation and implementation of conservation measures to minimize, or eliminate adverse impacts to the Fickeisen plains cactus and its habitat. The NNHP conduct surveys for the Fickeisen plains cactus and maintains a database on the quality of its habitat throughout Navajo Nation lands that includes the status and occurrence of the cactus. Having this information available creates effective conservation through any project review process. The implementation of their RCP has been coordinated and approved through appropriate Tribal processes. Overall, the commitment toward management of the Fickeisen plains cactus habitat likely accomplishes greater conservation than would be available through the implementation of a designation of



critical habitat on a project-by-project basis.

We have an established and effective working relationship with the Navajo Nation spanning several decades. This relationship has resulted in the implementation or facilitation of actions and plans that have benefited the conservation of numerous candidate and listed species on the Navajo Nation, including preparation of a recovery plan and status reviews for the Service, section 6 funding for inventory and monitoring, conservation projects, cooperative enforcement efforts, ongoing sharing of information, permitting Service personnel to conduct recovery activities on the Navajo Nation, and cooperation in section 7 consultations.

We assign great weight to the benefits of excluding Navajo Nation lands, which would honor our cooperative partnership with this Tribe. The Navajo Nation submitted comments in the second comment period stating that in weighing critical habitat exclusions the Service should consider the working relationship we have with tribes and the potential damage to the relationship if the Service intrudes on the sovereign authority of Tribal natural resource programs and Tribal plans for managing species. Furthermore, the Navajo Nation stated that Tribal trust lands are not public lands and are not subjected to the same Federal regulations or cultural context as those on public lands. Therefore, designation of critical habitat on their land may undermine internal efforts by the Navajo Nation to address impacts to the Fickeisen plains cactus through comprehensive reform (NNDFW 2012, pp. 4–5).

Evidence of this partnership is the Fickeisen Plains Cactus Management Plan, and the Navajo Nation has developed management plans to include conservation efforts for other listed species and their habitats. We believe that the Navajo Nation is willing to continue working cooperatively with us and others to benefit other listed species, but only if they view the relationship as mutually beneficial. Consequently, the development of future voluntary management actions for other listed species may be compromised if the Navajo Tribal lands are designated as critical habitat for the Fickeisen plains cactus. Thus, we place great weight on the benefits of excluding these lands due to this partnership in light of the future conservation efforts that would benefit Fickeisen plains cactus and other listed species.

#### Benefits of Exclusion Outweigh the Benefits of Inclusion—Navajo Nation

The benefits of including the Navajo Nation in the critical habitat designation are the incremental benefits gained through the regulatory requirement to consult under section 7 and consideration of the need to avoid adverse modification of critical habitat, agency and educational awareness, potential additional grant funding, and the implementation of other laws and regulations. However, as discussed in detail above, we believe these benefits are minimized because they are provided for through other mechanisms, such as: (1) the advancement of our Federal Indian Trust obligations; (2) the conservation benefits to the Fickeisen plains cactus and its habitat from implementation of the Navajo Nation Fickeisen plains cactus management plan; and (3) the maintenance

of effective collaboration and cooperation to promote the conservation of the cactus and its habitat.

If there is a Federal nexus for a project on the Navajo Nation, the action agency would be required to consult under section 7 of the Act to ensure the actions they fund, authorize, or carry out would not jeopardize the continued existence of the listed species. For critical habitat, projects undergoing section 7 consultation would need to evaluate effects to the primary constituent elements within the critical habitat unit, but there is no prohibition for take for plants, only recommended conservation measures. This consultation requirement appears to be comparable to requirements the Navajo Nation already has for project review, development of biological evaluations, and mitigation or avoidance to minimize negative effects to NESL-listed species, including plants. Navajo Nation policies offer additional or stricter protection over those defined in the Act such as a penalty for take of listed plants and a general avoidance distance of 61 m (200 ft).

Not all projects occurring on the Navajo Nation would have a Federal nexus. For those projects proposed by the Tribe or a non-Federal entity, for which section 7 would not apply, Tribal policies would be in effect. Overlaying the requirements for section 7 of the Act on top of the requirements in the RCP would not provide additional benefits to conserve the Fickeisen plains cactus. Therefore, the regulatory and conservation benefits of a critical habitat designation on these lands are minimized.

The benefits of excluding these areas from critical habitat designation are more

significant and include recognition and fostering of the partnership with the Navajo Nation, which is evidenced by the continued implementation of Tribal management and conservation measures such as monitoring, survey, habitat management and protection, and development of in-situ (on-site) conservation activities that are planned for future recovery of the taxon. Through these measures the Navajo Nation will continue to manage their natural resources to benefit habitat along canyon rims of the Colorado and Little Colorado Rivers for the Fickeisen plains cactus, without the perception of Federal Government intrusion. This philosophy is also consistent with our published policies on Native American natural resource management. The exclusion of these areas will likely also provide additional benefits to the Fickeisen plains cactus that would not otherwise be available without the Service's maintaining a cooperative working relationship with the Tribe. In conclusion, we find that the benefits of excluding Tribal land on the Navajo Nation in Arizona from critical habitat designation for the Fickeisen plains cactus outweigh the benefits of including those areas.

#### Exclusion Will Not Result in Extinction of the Species—Navajo Nation

As noted above, the Secretary, under section 4(b)(2) of the Act, may exclude areas from the critical habitat designation unless it is determined, "based on the best scientific and commercial data available, that the failure to designate such area as critical habitat will result in the extinction of the species concerned." We have determined that exclusion of the Navajo Nation from the critical habitat designation will not result in the extinction of the Fickeisen plains cactus. Federal activities on these areas that may affect the Fickeisen plains cactus will still require consultation under section 7 of the Act.

Section 7(a)(2) of the Act requires Federal agencies to ensure that activities they authorize, fund, or carry out are not likely to jeopardize the continued existence of listed species.

Therefore, even without critical habitat designation on the Navajo Nation lands, activities that occur on these lands cannot jeopardize the continued existence of the Fickeisen plains cactus. Even so, our record demonstrates that formal section 7 consultations rarely occur on tribal lands, which is likely a result of existing conservation planning. Second, the Navajo Nation has committed to protecting and managing its habitat according to their management plan and natural resource management objectives. We believe this commitment, in conjunction with listing of the plant on the NESL, accomplishes greater conservation than would be available through the designation of critical habitat. With the implementation of their RCP and their protection of the Fickeisen plains cactus, we have concluded that this exclusion from critical habitat will not result in the extinction of the cactus. Accordingly, we have determined that the Navajo Nation should be excluded under subsection 4(b)(2) of the Act, because the benefits of excluding these lands from critical habitat for the Fickeisen plains cactus outweigh the benefits of inclusion, and the exclusion of these lands from the designation will not result in the extinction of the taxon.

### **Required Determinations**

*Regulatory Planning and Review—Executive Orders 12866 and 13563*

Executive Order 12866 provides that the Office of Information and Regulatory Affairs (OIRA) will review all significant rules. The Office of Information and Regulatory Affairs has determined that this rule is not significant.

Executive Order 13563 reaffirms the principles of E.O. 12866, while calling for improvements in the nation's regulatory system to promote predictability, to reduce uncertainty, and to use the best, most innovative, and least burdensome tools for achieving regulatory ends. The executive order directs agencies to consider regulatory approaches that reduce burdens and maintain flexibility and freedom of choice for the public where these approaches are relevant, feasible, and consistent with regulatory objectives. E.O. 13563 emphasizes further that regulations must be based on the best available science and that the rulemaking process must allow for public participation and an open exchange of ideas. We have developed this rule in a manner consistent with these requirements.

*Regulatory Flexibility Act (5 U.S.C. 601 et seq.)*

Under the Regulatory Flexibility Act (RFA; 5 U.S.C. 601 *et seq.*), as amended by the Small Business Regulatory Enforcement Fairness Act of 1996 (SBREFA; 5 U.S.C. 801 *et seq.*), whenever an agency is required to publish a notice of rulemaking for any

proposed or final rule, it must prepare and make available for public comment a regulatory flexibility analysis that describes the effects of the rule on small entities (i.e., small businesses, small organizations, and small government jurisdictions). However, no regulatory flexibility analysis is required if the head of the agency certifies the rule will not have a significant economic impact on a substantial number of small entities. The SBREFA amended the RFA to require Federal agencies to provide a certification statement of the factual basis for certifying that the rule will not have a significant economic impact on a substantial number of small entities.

According to the Small Business Administration, small entities include small organizations such as independent nonprofit organizations; small governmental jurisdictions, including school boards and city and town governments that serve fewer than 50,000 residents; and small businesses (13 CFR 121.201). Small businesses include manufacturing and mining concerns with fewer than 500 employees, wholesale trade entities with fewer than 100 employees, retail and service businesses with less than \$5 million in annual sales, general and heavy construction businesses with less than \$27.5 million in annual business, special trade contractors doing less than \$11.5 million in annual business, and agricultural businesses with annual sales less than \$750,000. To determine if potential economic impacts to these small entities are significant, we considered the types of activities that might trigger regulatory impacts under this designation as well as types of project modifications that may result. In general, the term “significant economic impact” is meant to apply to a typical small business firm’s business operations.

The Service's current understanding of the requirements under the RFA, as amended, and following recent court decisions, is that Federal agencies are only required to evaluate the potential incremental impacts of rulemaking on those entities directly regulated by the rulemaking itself, and therefore, not required to evaluate the potential impacts to indirectly regulated entities. The regulatory mechanism through which critical habitat protections are realized is section 7 of the Act, which requires Federal agencies, in consultation with the Service, to ensure that any action authorized, funded, or carried by the Agency is not likely to destroy or adversely modify critical habitat. Therefore, under section 7 only Federal action agencies are directly subject to the specific regulatory requirement (avoiding destruction and adverse modification) imposed by critical habitat designation. Consequently, it is our position that only Federal action agencies will be directly regulated by this designation. There is no requirement under RFA to evaluate the potential impacts to entities not directly regulated. Moreover, Federal agencies are not small entities. Therefore, because no small entities are directly regulated by this rulemaking, the Service certifies that, if promulgated, the final critical habitat designation will not have a significant economic impact on a substantial number of small entities.

*Energy Supply, Distribution, or Use—Executive Order 13211*

Executive Order 13211 (Actions Concerning Regulations That Significantly



Affect Energy Supply, Distribution, or Use) requires agencies to prepare Statements of Energy Effects when undertaking certain actions. The Office of Management and Budget indicates that this statement is required only when a rulemaking is both significant under E.O. 12866 and exceeds one or more of the nine threshold levels outlined in their guidance on implementation of E.O. 13211. The critical habitat designation for Fickeisen plains cactus is not a significant rulemaking under E.O. 12866. Critical habitat designation for the Fickeisen plains cactus is anticipated to affect uranium mining. Impacts to uranium mining, however, are limited to the administrative costs of one formal consultation for the EZ Mine, totaling less than \$900 in costs for the managing company, Energy Fuels Inc., over the 20-year period of analysis. The magnitude of these consultation costs is not anticipated to reduce fuel production or energy production, or increase the cost of energy production or distribution in the United States in excess of one percent. Thus, none of the nine threshold levels outlined by the Office of Management and Budget's guidance for implementing this Executive Order is exceeded. Therefore, we do not expect the designation of this final critical habitat to significantly affect energy supplies, distribution, or use. Therefore, this action is not a significant energy action, and no Statement of Energy Effects is required.

*Unfunded Mandates Reform Act (2 U.S.C. 1501 et seq.)*

In accordance with the Unfunded Mandates Reform Act (2 U.S.C. 1501 *et seq.*), we make the following findings:

(1) This rule would not produce a Federal mandate. In general, a Federal mandate is a provision in legislation, statute, or regulation that would impose an enforceable duty upon State, local, or Tribal governments, or the private sector, and includes both “Federal intergovernmental mandates” and “Federal private sector mandates.” These terms are defined in 2 U.S.C. 658(5)–(7). “Federal intergovernmental mandate” includes a regulation that “would impose an enforceable duty upon State, local, or tribal governments” with two exceptions. It excludes “a condition of Federal assistance.” It also excludes “a duty arising from participation in a voluntary Federal program,” unless the regulation “relates to a then-existing Federal program under which \$500,000,000 or more is provided annually to State, local, and Tribal governments under entitlement authority,” if the provision would “increase the stringency of conditions of assistance” or “place caps upon, or otherwise decrease, the Federal Government’s responsibility to provide funding,” and the State, local, or Tribal governments “lack authority” to adjust accordingly. At the time of enactment, these entitlement programs were: Medicaid; Aid to Families with Dependent Children work programs; Child Nutrition; Food Stamps; Social Services Block Grants; Vocational Rehabilitation State Grants; Foster Care, Adoption Assistance, and Independent Living; Family Support Welfare Services; and Child Support Enforcement. “Federal private sector mandate” includes a regulation that “would impose an enforceable duty upon the private sector, except (i) a condition of Federal assistance or (ii) a duty arising from participation in a voluntary Federal program.”

The designation of critical habitat does not impose a legally binding duty on non-Federal government entities or private parties. Under the Act, the only regulatory effect is that Federal agencies must ensure that their actions do not destroy or adversely modify critical habitat under section 7. While non-Federal entities that receive Federal funding, assistance, or permits, or that otherwise require approval or authorization from a Federal agency for an action, may be indirectly impacted by the designation of critical habitat, the legally binding duty to avoid destruction or adverse modification of critical habitat rests squarely on the Federal agency. Furthermore, to the extent that non-Federal entities are indirectly impacted because they receive Federal assistance or participate in a voluntary Federal aid program, the Unfunded Mandates Reform Act would not apply, nor would critical habitat shift the costs of the large entitlement programs listed above onto State governments.

(2) We do not believe that this rule would significantly or uniquely affect small governments. The lands being designated for critical habitat are predominantly owned by the BLM, Bureau of Reclamation, U.S. Military, USFS, National Park Service, State of Arizona, and Tohono O’odham and Navajo Nations. None of these government entities fit the definition of “small governmental jurisdiction.” Therefore, a Small Government Agency Plan is not required.

*Takings—Executive Order 12630*

In accordance with E.O. 12630 (Government Actions and Interference with

Constitutionally Protected Private Property Rights), we have analyzed the potential takings implications of designating critical habitat for the acuña cactus and Fickeisen plains cactus in a takings implications assessment. The Act does not authorize the Service to regulate private actions on private lands or confiscate private property as a result of critical habitat designation. Designation of critical habitat does not affect land ownership, or establish any closures, or restrictions on use of or access to the designated areas. Furthermore, the designation of critical habitat does not affect landowner actions that do not require Federal funding or permits, nor does it preclude development of habitat conservation programs or issuance of incidental take permits to permit actions that do require Federal funding or permits to go forward. However, Federal agencies are prohibited from carrying out, funding, or authorizing actions that would destroy or adversely modify critical habitat. A takings implications assessment has been completed and concludes that this designation of critical habitat for the acuña cactus and Fickeisen plains cactus does not pose significant takings implications for lands within or affected by the designation.

*Federalism—Executive Order 13132*

In accordance with Executive Order 13132 (Federalism), this final rule does not have significant Federalism effects. A Federalism summary impact statement is not required. In keeping with Department of the Interior and Department of Commerce policy, we requested information from, and coordinated development of, this final critical habitat designation with appropriate State resource agencies in Arizona. The designation

of critical habitat in areas currently occupied by the acuña cactus or the Fickeisen plains cactus may impose nominal additional regulatory restrictions to those currently in place and, therefore, may have little incremental impact on State and local governments and their activities. The designation may have some benefit to these governments because the areas that contain the physical or biological features essential to the conservation of the species are more clearly defined, and the elements of the features of the habitat necessary to the conservation of the species are specifically identified. This information does not alter where and what federally sponsored activities may occur. However, it may assist local governments in long-range planning (rather than having them wait for case-by-case section 7 consultations to occur).

Where State and local governments require approval or authorization from a Federal agency for actions that may affect critical habitat, consultation under section 7(a)(2) would be required. While non-Federal entities that receive Federal funding, assistance, or permits, or that otherwise require approval or authorization from a Federal agency for an action, may be indirectly impacted by the designation of critical habitat, the legally binding duty to avoid destruction or adverse modification of critical habitat rests squarely on the Federal agency.

*Civil Justice Reform—Executive Order 12988*

In accordance with Executive Order 12988 (Civil Justice Reform), the Office of the Solicitor has determined that the rule does not unduly burden the judicial system and

that it meets the requirements of sections 3(a) and 3(b)(2) of the Order. We have designated critical habitat in accordance with the provisions of the Act. This final rule uses standard property descriptions and identifies the elements of physical or biological features essential to the conservation of the acuña cactus and Fickeisen plains cactus within the designated areas to assist the public in understanding the habitat needs of the species.

*Paperwork Reduction Act of 1995 (44 U.S.C. 3501 et seq.)*

This rule does not contain any new collections of information that require approval by OMB under the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 *et seq.*). This rule will not impose recordkeeping or reporting requirements on state or local governments, individuals, businesses, or organizations. An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number.

*National Environmental Policy Act (42 U.S.C. 4321 et seq.)*

It is our position that, outside the jurisdiction of the U.S. Court of Appeals for the Tenth Circuit, we do not need to prepare environmental analyses pursuant to the National Environmental Policy Act (NEPA; 42 U.S.C. 4321 *et seq.*) in connection with designating critical habitat under the Act. We published a notice outlining our reasons for this determination in the **Federal Register** on October 25, 1983 (48 FR 49244). This

position was upheld by the U.S. Court of Appeals for the Ninth Circuit (*Douglas County v. Babbitt*, 48 F.3d 1495 (9th Cir. 1995), cert. denied 516 U.S. 1042 (1996)).

### *Government-to-Government Relationship with Tribes*

In accordance with the President's memorandum of April 29, 1994 (Government-to-Government Relations with Native American Tribal Governments; 59 FR 22951), Executive Order 13175 (Consultation and Coordination With Indian Tribal Governments), and the Department of the Interior's manual at 512 DM 2, we readily acknowledge our responsibility to communicate meaningfully with recognized Federal Tribes on a government-to-government basis. In accordance with Secretarial Order 3206 of June 5, 1997 (American Indian Tribal Rights, Federal-Tribal Trust Responsibilities, and the Endangered Species Act), we readily acknowledge our responsibilities to work directly with tribes in developing programs for healthy ecosystems, to acknowledge that tribal lands are not subject to the same controls as Federal public lands, to remain sensitive to Indian culture, and to make information available to tribes.

We included some Tohono O'odham Nation lands in Pima County, Arizona, in the proposed designation of acuña cactus critical habitat and Navajo Nation lands in Coconino County, Arizona, in the proposed designation of Fickeisen plains cactus critical habitat. Less than one percent of all known acuña cacti occur on Tohono O'odham Nation lands; 15 percent of all known Fickeisen plains cactus occur on Navajo Nation lands. Using the criteria found in the *Criteria Used To Identify Critical Habitat* section, we determined that all of the areas proposed for designation on tribal lands were essential

to the conservation of the acuña cactus and Fickeisen plains cactus. We sought government-to-government consultation with the Tohono O’odham and the Navajo Nations throughout the proposal and development of this final designation of acuña cactus and Fickeisen plains cactus critical habitat, and we spoke to tribal representatives at meetings about the designation. We communicated with tribes through letters, electronic messages, and telephone calls about our exclusion process under section 4(b)(2) of the Act, and we provided information to develop management plans, technical assistance and review of management plans, and critical habitat designation information and schedule updates. We considered these tribal areas for exclusion from final critical habitat designation to the extent consistent with the requirements of section 4(b)(2) of the Act, and subsequently, excluded all tribal lands from this final designation.

### **References Cited**

A complete list of references cited in this final rulemaking is available on the Internet at <http://www.regulations.gov> and upon request from the Arizona Ecological Services Field Office (see **FOR FURTHER INFORMATION CONTACT**).

### **Authors**

The primary authors of this package are the staff members of the Arizona Ecological Services Field Office.



## **List of Subjects in 50 CFR Part 17**

Endangered and threatened species, Exports, Imports, Reporting and recordkeeping requirements, Transportation.

## **Regulation Promulgation**

Accordingly, we hereby amend amend part 17, subchapter B of chapter I, title 50 of the Code of Federal Regulations, as set forth below:

### **PART 17—[AMENDED]**

1. The authority citation for part 17 continues to read as follows:

**Authority:** 16 U.S.C. 1361–1407; 1531–1544; 4201–4245; unless otherwise noted.

2. Amend § 17.12(h), the List of Endangered and Threatened Plants, by revising the entries for “*Echinomastus erectocentrus* var. *acunensis*” and “*Pediocactus peeblesianus* var. *fickeiseniae*” under FLOWERING PLANTS, to read as follows:

### **§ 17.12 Endangered and threatened plants.**

\* \* \* \* \*

(h) \* \* \*

Scientific name	Common name	Where listed	Status	Listing citations and applicable rules
FLOWERING PLANTS				
* * * * *				
<i>Echinomastus erectocentrus</i> var. <i>acunensis</i>	Acuña cactus	Wherever found	E	78 FR 60607; 10/1/2013 50 CFR 17.96(a) <sup>CH</sup>
* * * * *				
<i>Pediocactus peeblesianus</i> var. <i>fickeiseniae</i>	Fickeisen plains cactus	Wherever found	E	78 FR 60607; 10/1/2013 50 CFR 17.96(a) <sup>CH</sup>
* * * * *				

3. Amend § 17.96(a) by adding entries for “*Echinomastus erectocentrus* var. *acunensis* (acuña cactus)” and “*Pediocactus peeblesianus* var. *fickeiseniae* (Fickeisen plains cactus),” in alphabetical order under the family Cactaceae, to read as follows:

**§ 17.96 Critical habitat—plants.**

(a) *Flowering plants.*

\* \* \* \* \*

Family Cactaceae: *Echinomastus erectocentrus* var. *acunensis* (acuña cactus)

(1) Critical habitat units are depicted for Maricopa, Pima, and Pinal Counties, Arizona, on the maps below.

(2) Within these areas, the primary constituent elements of the physical or biological features essential to the conservation of the acuña cactus consist of:

(i) Native vegetation within the Paloverde-Cacti-Mixed-Scrub Series of the Arizona Upland Subdivision of the Sonoran Desert-scrub at elevations between 365 to 1,150 m (1,198 to 3,773 ft). This vegetation must contain predominantly native plant species that:

(A) Provide protection to the acuña cactus (Examples of such plants are creosote bush, ironwood, and palo verde.);

(B) Provide for pollinator habitat with a radius of 900 m (2,953 ft) around each individual reproducing acuña cactus;

(C) Allow for seed dispersal through the presence of bare soils immediately adjacent to and within 10 m (33 ft) of individual acuña cactus.

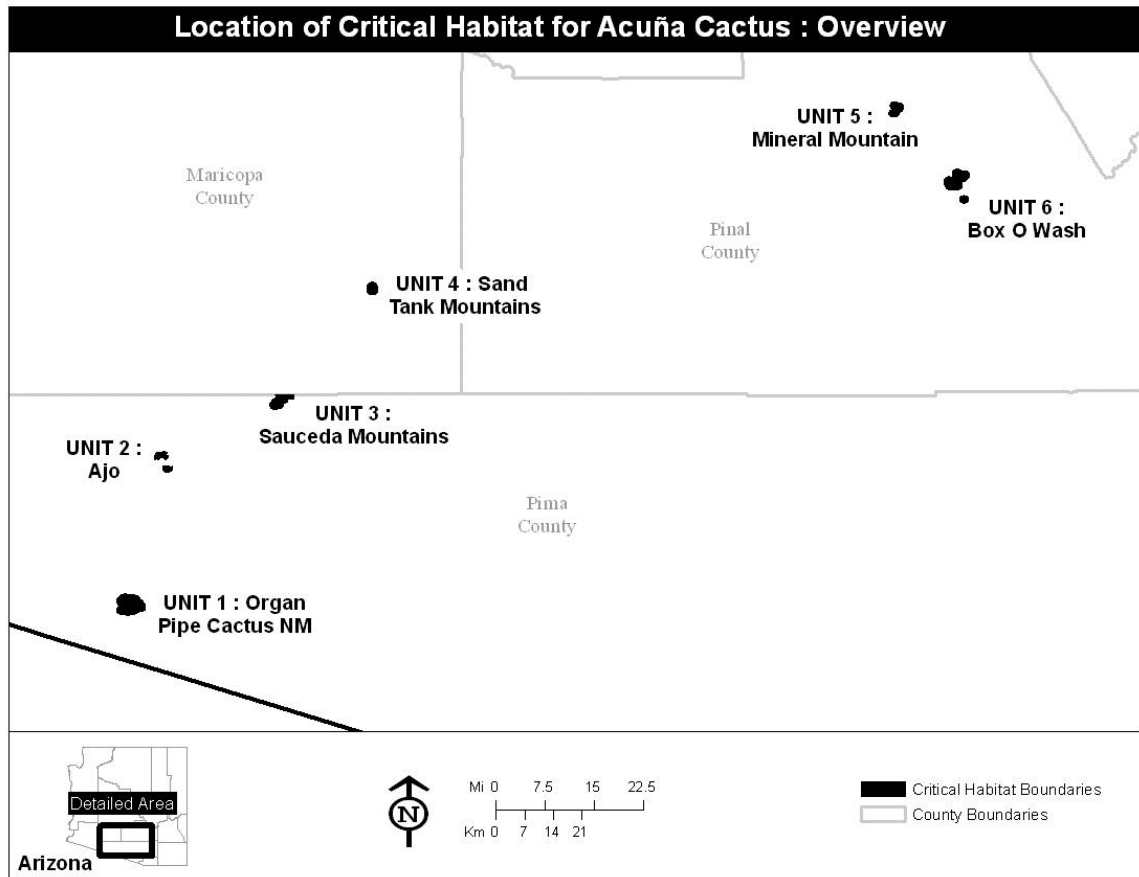
(ii) Soils overlying rhyolite, andesite, tuff, granite, granodiorite, diorite, or Cornelia quartz monzonite bedrock that are in valley bottoms, on small knolls, or on ridgetops, and are generally on slopes of less than 30 percent.

(3) Critical habitat does not include manmade structures (such as buildings, aqueducts, runways, roads, and other paved areas) and the land on which they are located existing within the legal boundaries on [**INSERT DATE 30 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER**].

(4) *Critical habitat map units.* Digital data layers defining map units were created using geology, topography, elevation, vegetation community, mean annual precipitation from the 1971 to 2000 period of record, and acuña cactus herbarium and site visit records from 1952 to the present; these were mapped using Universal Transverse Mercator coordinates. The maps in this entry, as modified by any accompanying regulatory text, establish the boundaries of the critical habitat designation. The coordinates or plot points or both on which each map is based are available to the public at the Service's internet site (<http://www.fws.gov/southwest/es/arizona/>), <http://www.regulations.gov> at Docket No. FWS-R2-ES-2013-0025, and at the field

office responsible for this designation. You may obtain field office location information by contacting one of the Service regional offices, the addresses of which are listed at 50 CFR 2.2.

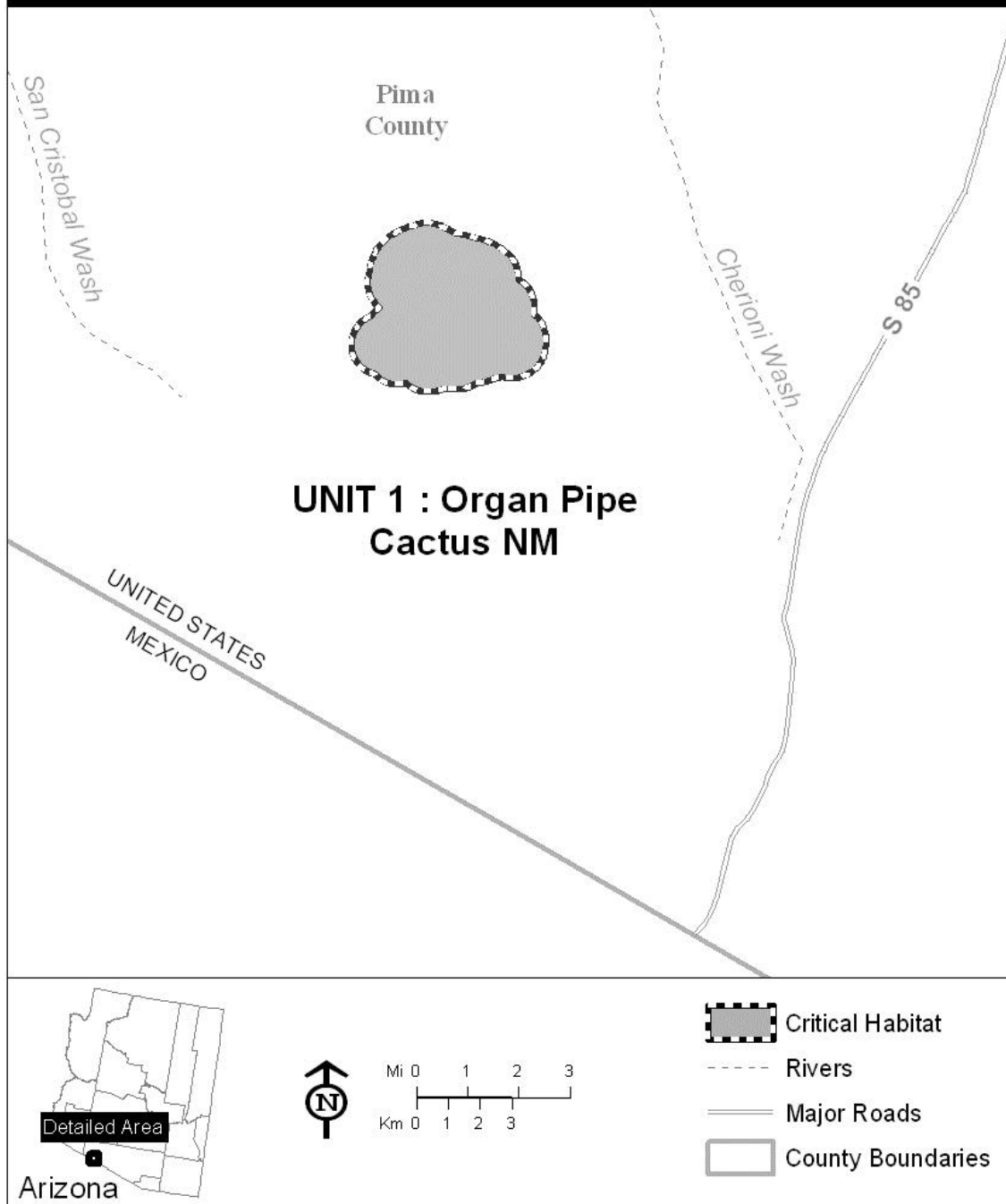
(5) Index map follows:



(6) Unit 1: Organ Pipe Cactus National Monument, Pima County, AZ. Map of

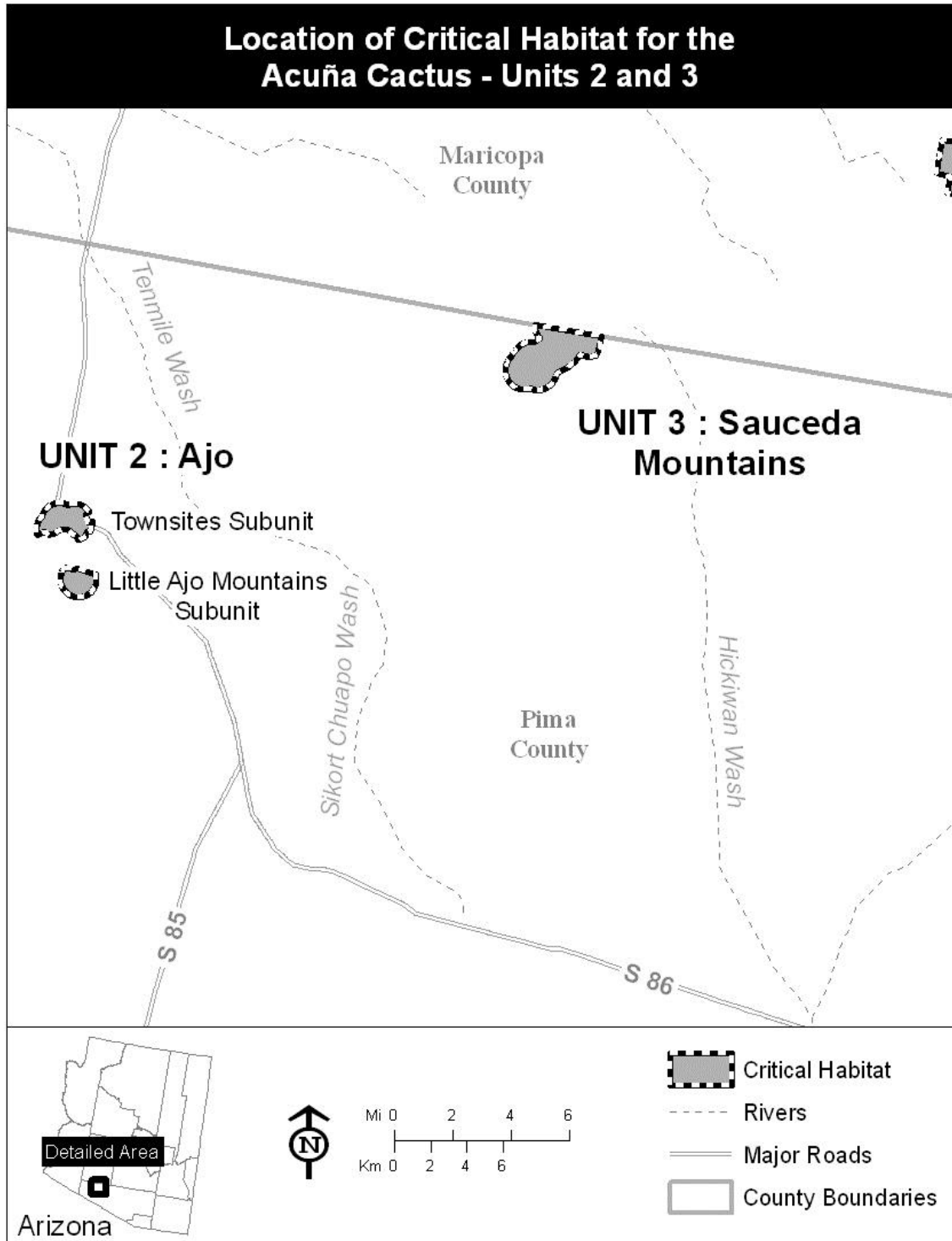
Unit 1 follows:

## Location of Critical Habitat for the Acuña Cactus - Unit 1





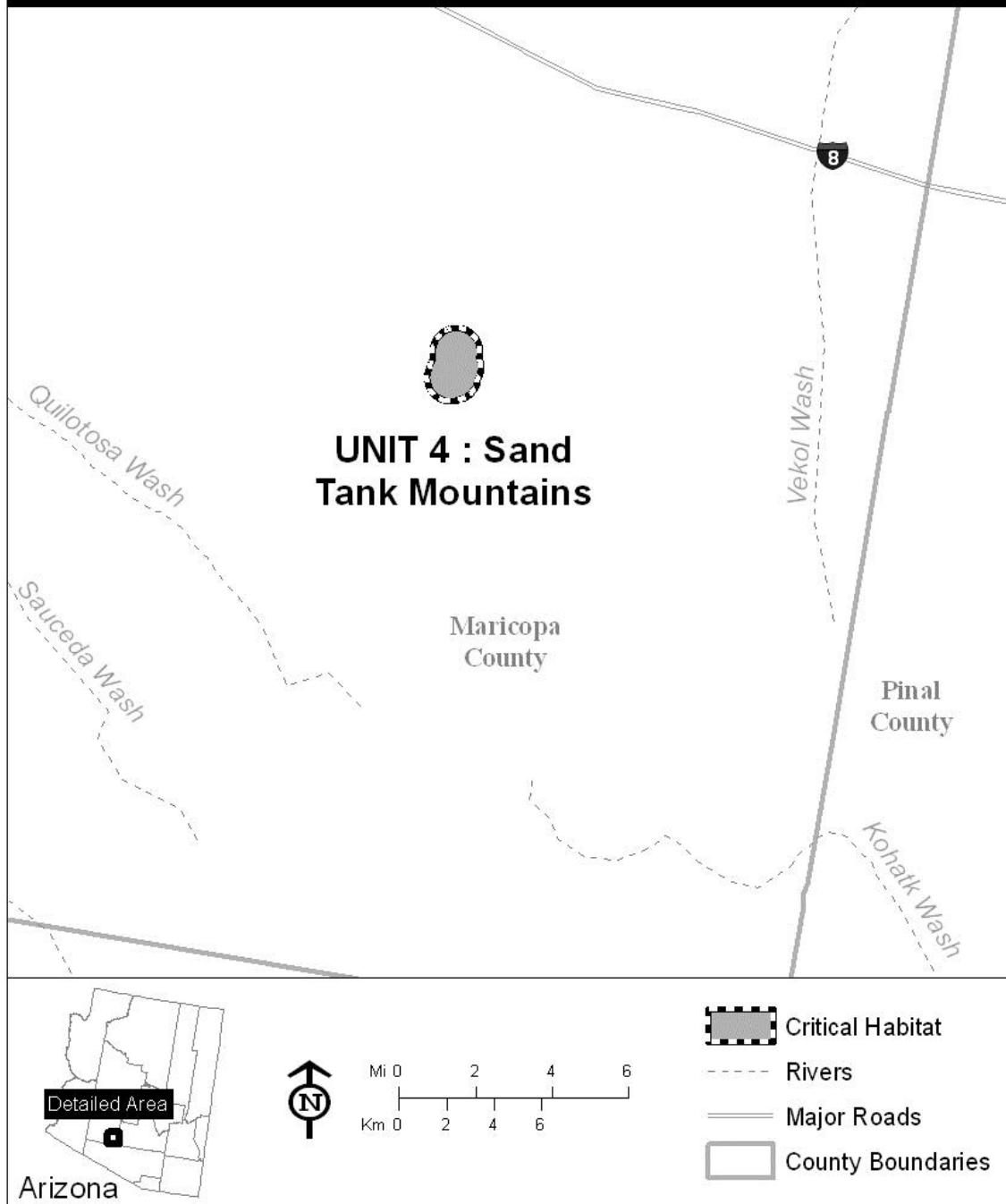
(7) Unit 2: Ajo Unit, Pima County, AZ. Map of Unit 2 follows:



(8) Unit 3: Saucedo Mountains Unit, Maricopa and Pima Counties, AZ. Map of Unit 3 is provided at paragraph (7) of this entry.

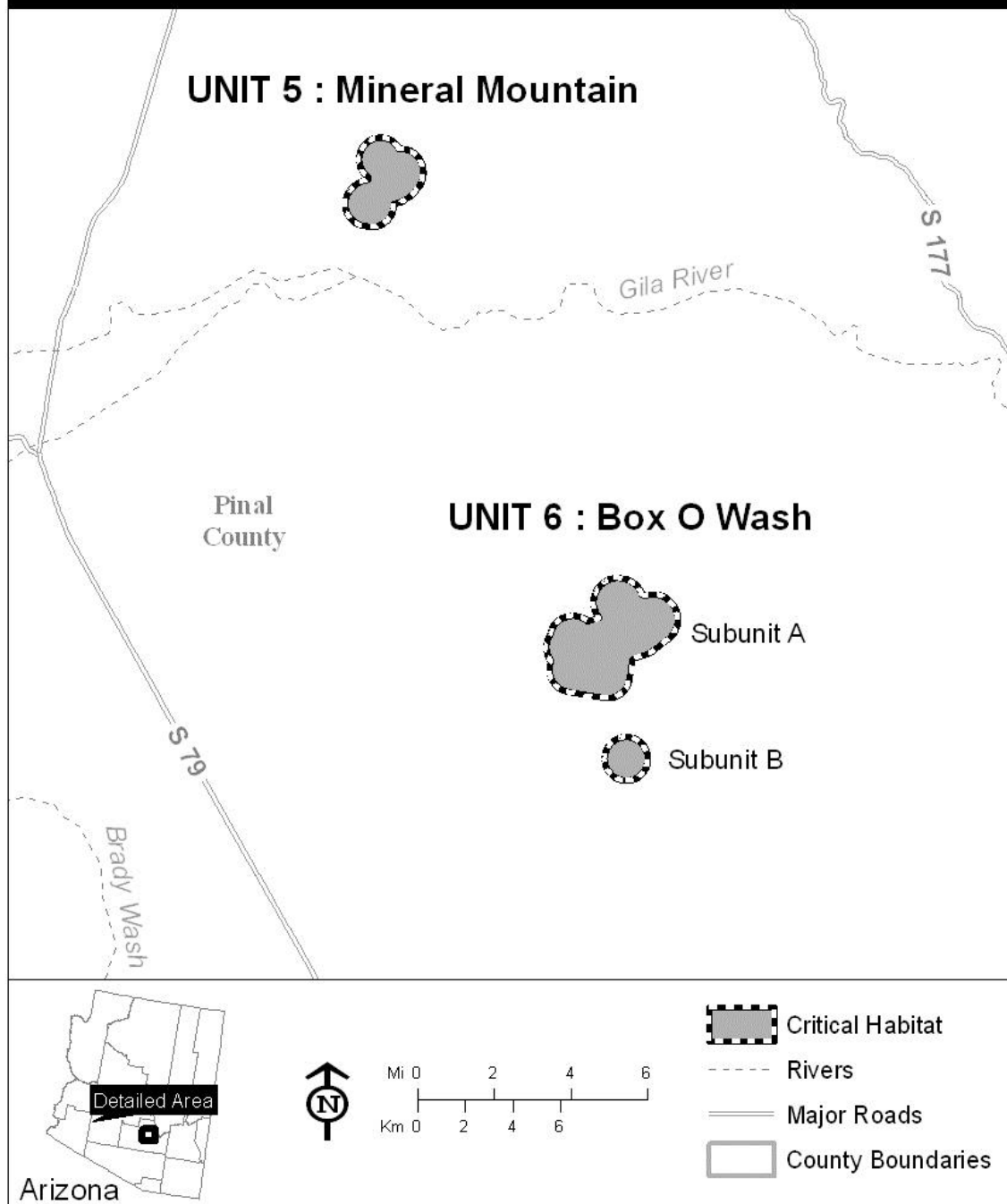
(9) Unit 4: Sand Tank Mountains Unit, Maricopa County, AZ. Map of Unit 4 follows:

## Location of Critical Habitat for the Acuña Cactus - Unit 4



(10) Unit 5: Mineral Mountain Unit, Pinal County, AZ. Map of Units 5 and 6 follows:

## Location of Critical Habitat for the Acuña Cactus - Units 5 and 6



(11) Unit 6: Box O Wash Unit, Pinal County, AZ. Map of Unit 6 is provided at paragraph (10) of this entry.

\* \* \* \* \*

Family Cactaceae: *Pediocactus peeblesianus* var. *fickeiseniae* (Fickeisen plains cactus)

(1) Critical habitat units are depicted for Mohave and Coconino Counties, Arizona, on the maps below.

(2) Within these areas, the primary constituent elements of the physical or biological features essential to the conservation of the Fickeisen plains cactus consist of:

- (i) Soils derived from limestone that are found on mesas, plateaus, terraces, the toe of gentle sloping hills with up to 20 percent slope, margins of canyon rims, and desert washes. These soils have the following features:
  - (A) They occur on the Colorado Plateau in Coconino and Mohave Counties of northern Arizona and are within the appropriate series found in occupied areas;
  - (B) They are derived from alluvium, colluvium, or eolian deposits of limestone from the Harrisburg member of the Kaibab Formation and limestone, siltstone, and sandstone of the Toroweap and Moenkopi Formations;
  - (C) They are nonsaline to slightly saline, gravelly, shallow to moderately deep,

and well-drained with little signs of soil movement. Soil texture consists of gravelly loam, fine sandy loam, gravelly sandy loam, very gravelly sandy loam, clay loam, and cobbly loam.

(ii) Native vegetation within the Plains and Great Basin grassland and Great Basin desertscrub vegetation communities from 1,310 to 1,813 m (4,200 to 5,950 ft) in elevation that has a natural, generally intact surface and subsurface that preserves the bedrock substrate and is supportive of microbiotic soil crusts where they are naturally found.

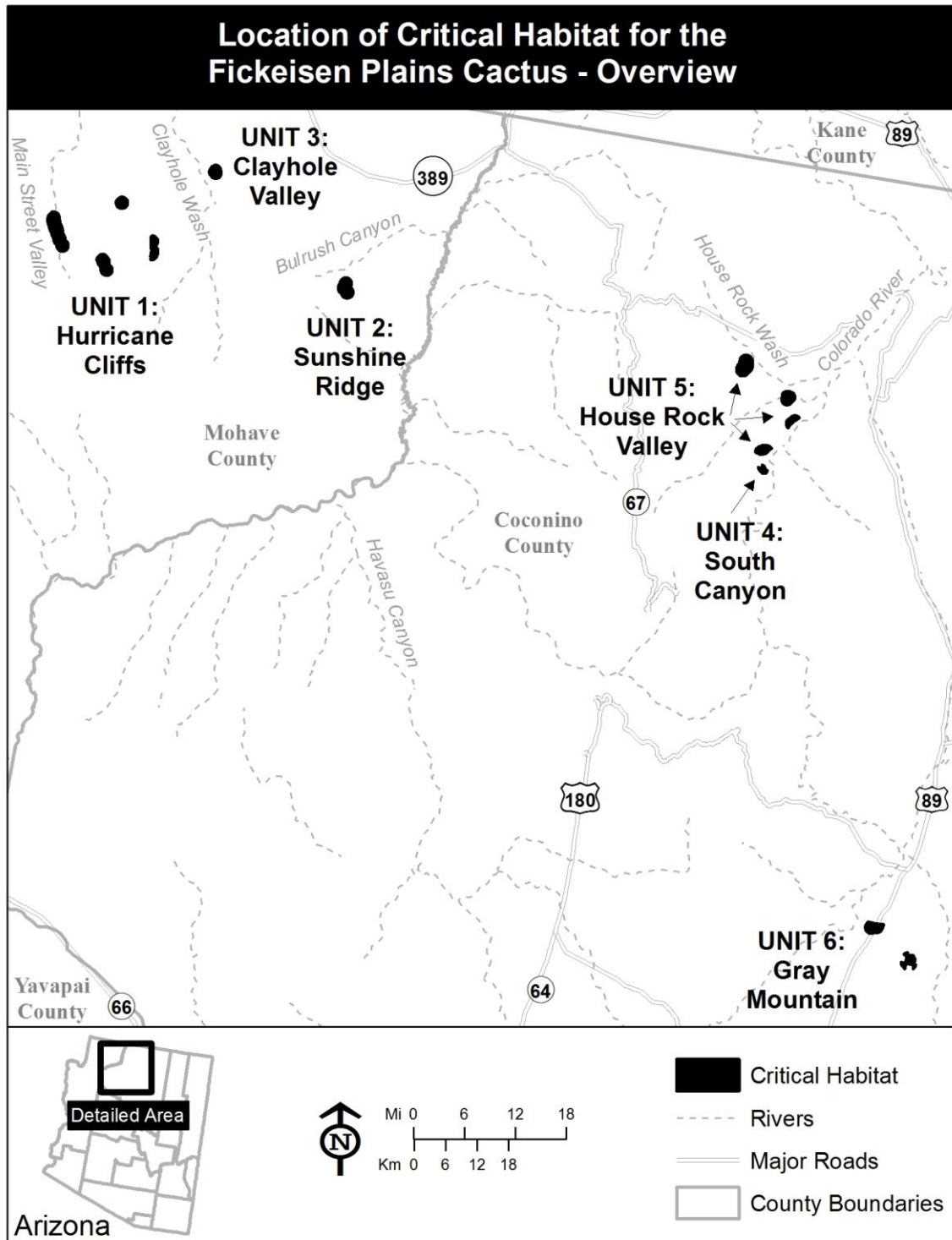
(iii) Native vegetation that provides for habitat of identified pollinators within the effective pollinator distance of 1,000 m (3,280 ft) around each individual Fickeisen plains cactus.

(3) Critical habitat does not include manmade structures (such as buildings, aqueducts, runways, roads, and other paved areas) and the land on which they are located existing within the legal boundaries on [INSERT DATE 30 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

(4) *Critical habitat map units.* Data layers defining map units were created using a base of U.S. Geological Survey 7.5' quadrangle maps. Critical habitat units were then mapped using Universal Transverse Mercator zone 11, North American Datum 1983 coordinates.

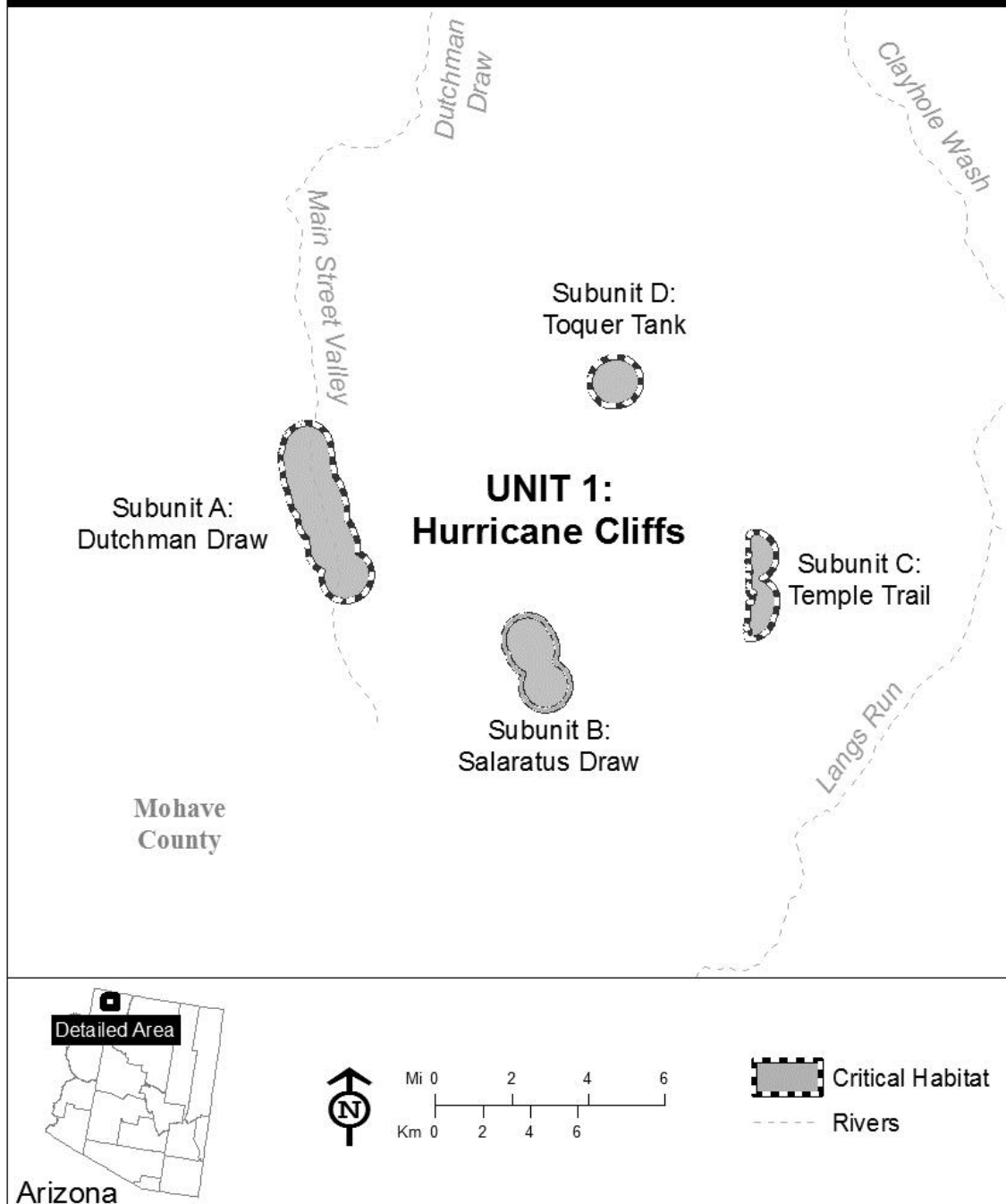


(5) *Note:* Index map follows:

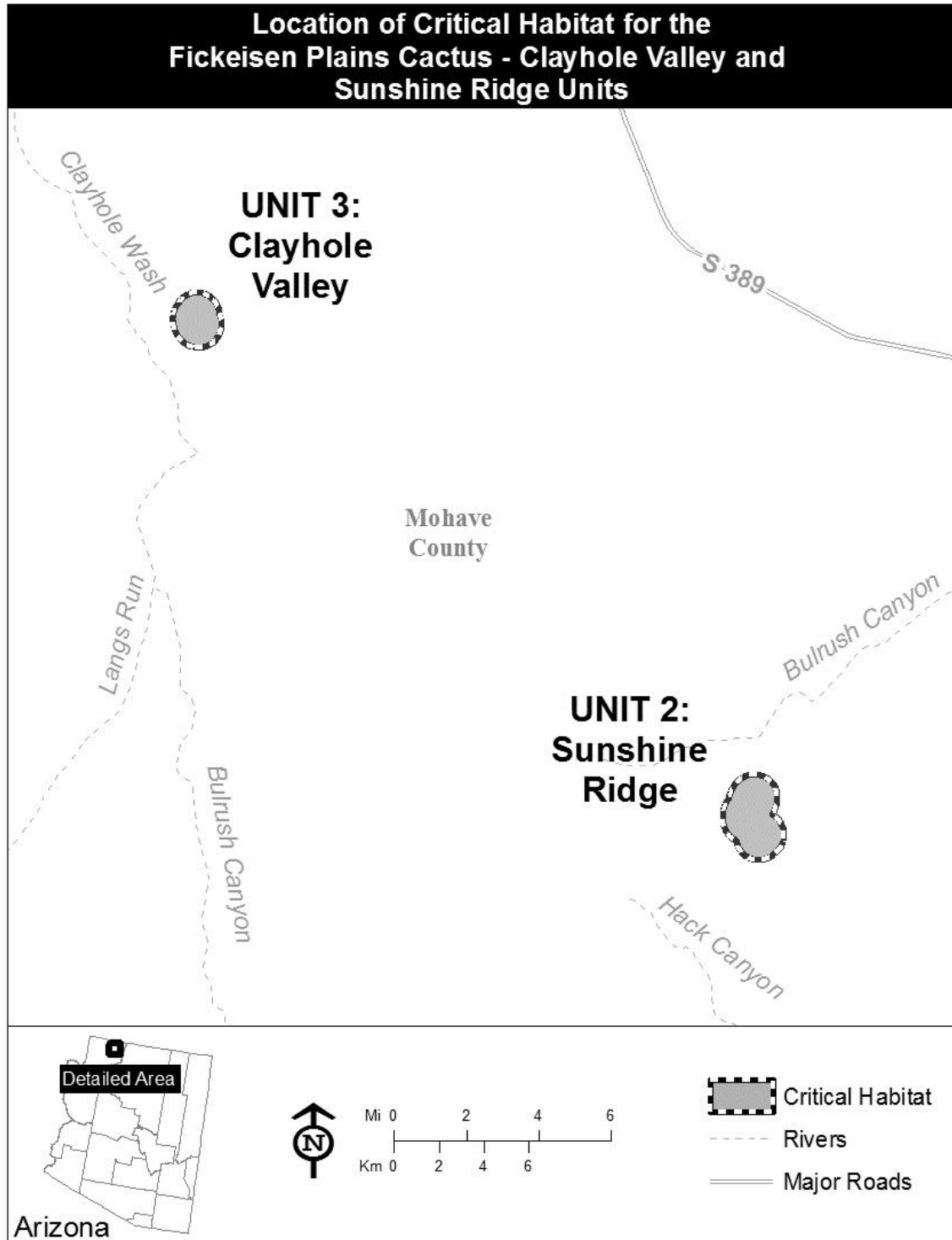


(6) Unit 1: Hurricane Cliffs Unit, Mohave County, AZ. Map of Unit 1 follows:

## Location of Critical Habitat for the Fickeisen Plains Cactus - Hurricane Cliffs Unit

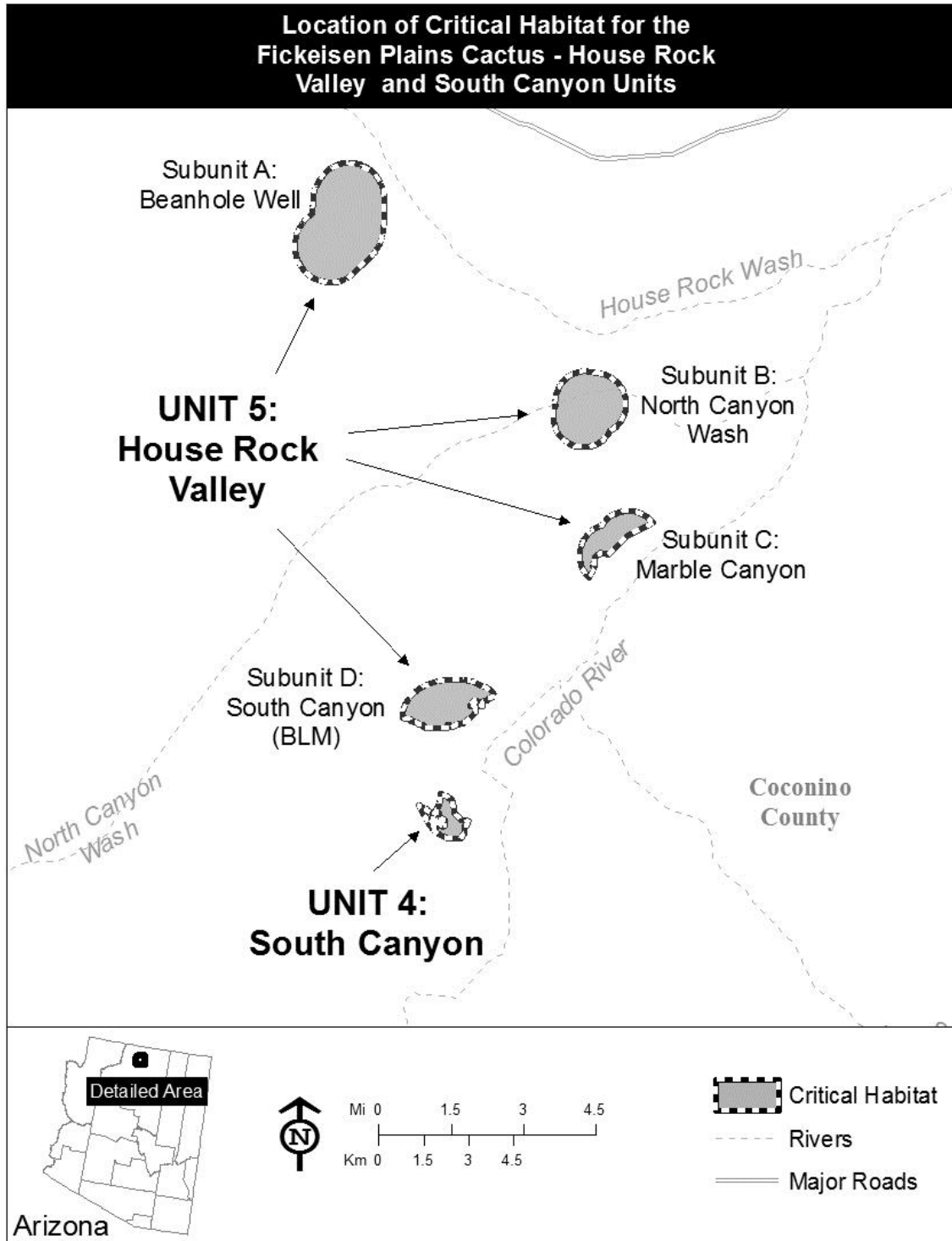


(7) Unit 2: Sunshine Ridge Unit, Mohave County, AZ. Map of Units 2 and 3 follows:



(8) Unit 3: Clayhole Valley Unit, Mohave County, AZ. Map of Unit 3 is provided at paragraph (7) of this entry.

(9) Unit 4: South Canyon Unit, Coconino County, AZ. Map of Unit 4 follows:

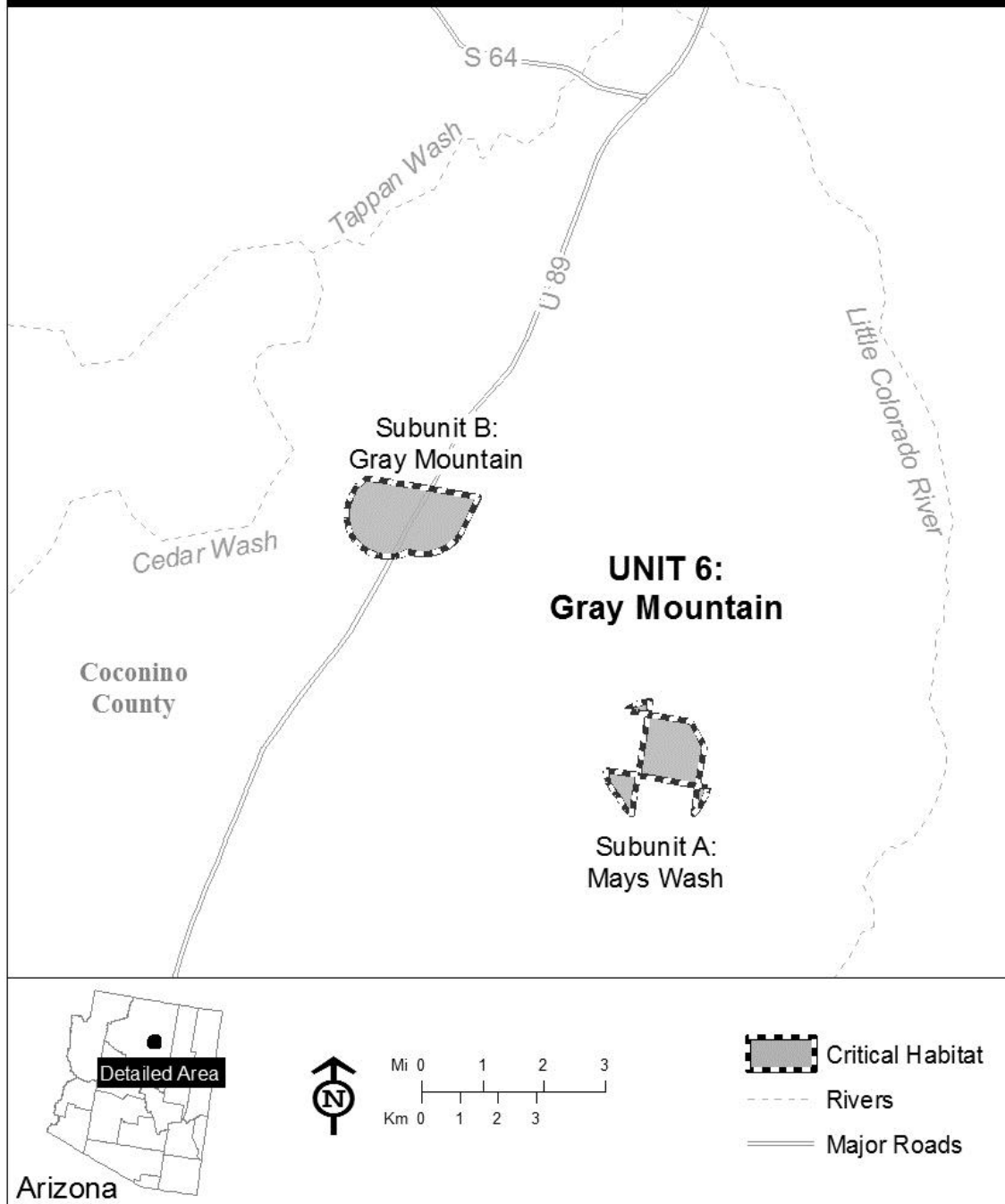


(10) Unit 5: House Rock Valley Unit, Coconino County, AZ. Map of Unit 5 is provided at paragraph (9) of this entry.

(11) Unit 6: Gray Mountain Unit, Coconino County, AZ. Map of Unit 6 follows:



**Location of Critical Habitat for the  
Fickeisen Plains Cactus - Gray Mountain Unit**



\* \* \* \* \*

Dated: July 22, 2016

Michael J. Bean

Principal Deputy Assistant Secretary for Fish and Wildlife and Parks

Billing Code 4333-15

[FR Doc. 2016-19159 Filed: 8/17/2016 8:45 am; Publication Date: 8/18/2016]